ORDER NO. EOS-84-1070

Service Manual

Electronic Organ
SX-G7

(EN), (ES), (ED), (EI), (EH), (EB), (EF),
(EG), (EW), (EL), (EP), (MC), (XT),
(EK), (XL), (XR), (XS), (X), (XX), (XV)

AREAS

(EN): Norway
(ES): Sweden
(ED): Denmark
(EI): Italy
(EH): Holland
(EB): Belgium
(EF): France
(EG): Garmany, Austria
(EW): Switzerland
(EL): Finland
(EP): Spain

(EK): the United Kingdom
(MC): Canada
(XT): Taiwan
(XL): New Zealand
(XR): Australia
(XS): Malaysia, Singapore, South Africa
(X): the Middle East, Hong Kong, the Philippines, Indonesia
(XV): Venezuela, Ecador, Panama
(XX): Peru, Chile

Specifications

Keyboards	
• Upper Manual:	49 Key (4 Octaves)
• Lower Manual:	49 Key (4 Octaves)
• Pedal Keyboard:	13 Key (1 Octave) + Full-bass Pedal
Musical Display:	Mode Selector...Tempo, Stopwatch, Calculation FSC, VSC, Play Sequencer, Digital Memory Pack, PCC, Harmonic Coupler, Techni-Chord, Transpose, APC, Tempo, Chord
Fullband Setting Computer (FSC):	**Record**, Digital Memory Pack...Lower Key 1 ~ 8
Voice Setting Computer (VSC):	**Record**, I~VII, Cancel 20 Combination VSC (lower keyboard: 1~20)
Play Sequencer:	**Record**, Bass, Lower, Upper, Solo, Digital Memory Pack
Orchestral Conductor	
• Upper:	Upper Tab Voices, Percussive Presets, Organ Presets, Orchestral Presets, String Ensemble, Solo Synthe Presets, Vocal Ensemble
• Lower:	Lower Tab Voices, Percussive Presets, Organ Presets, Orchestral Presets, String Ensemble, Solo Synthe Presets, Vocal Ensemble
Upper Tones	
• Tab Voices:	Flute 16′, 8′, $5^1/_3$′, 4′, $2^2/_3$′, 2′, $1^1/_3$′, 1′—(digital drawbars), String 8′, 4′ ...Slow Attack, Upper Volume
Percussive Tone:	$5^1/_3$′, 4′, $2^2/_3$′, 2′, Click...Volume, Long
Harmonic Coupler:	**Record**, $2^2/_3$′, Program, Cancel
• Percussive Presets: (Upper & Lower)	Acoustic Piano, Electric Piano, Harpsichord, Vibraphone, Acoustic Guitar, Jazz Guitar, Clavi, Glocken, Steel Drum, Banjo ...Volume, Harmonic Control
• Organ Presets:	**Record**, I, II, III, IV, 20 Organ Presets, Digital Drawbars
• Orchestral Presets: (Upper & Lower)	Trombone, Saxophone, Accordion, Clarinet, Wah Brass, Synthe Brass, Trumpet, French Horn...Volume, Harmonic Control
• Solo Synthe Presets: (Upper & Lower)	Violin, Harmonica, Trombone, Trumpet, Saxophone, Clarinet, Flute, Oboe, Pan Flute, Whistle, Rock Guitar, Cosmic, Synthe Chopper...Key Bender, Volume, Hormonic Control
• String Ensemble:	Cello, Violin...Volume
• Vocal Ensemble: (Upper & Lower)	Ah/Humming...Volume
Lower Tones	
• Tab Voices:	Flute 8′, 4′, 2′, 1′—(digital drawbars), String 8′, 4′...Lower Volume
Harmonic Coupler:	**Record**, 2′, Program, Cancel
• Organ Presets:	**Record**, Digital Drawbars
• String Ensemble:	Cello, Violin...Volume
• Percussive Presets:	(Upper & Lower) } common used for upper and lower tones
• Orchestral Presets:	(Upper & Lower)
• Solo Synthe Presets:	(Upper & Lower)
• Vocal Ensemble:	(Upper & Lower)
Bass Tones:	Bass 16′, 8′, Acoustic Bass, Ensemble Bass, Electric Bass, Chopper Bass, Pipe Bass I, II, Synthe Bass, Tuba...Volume, Harmonic Control
• Full-bass Pedal:	Bass Solo
Effects	
• Sustain:	Upper ....On, Length Control U & L Percussive Presets ...On, Length Control Lower ....On, Length Control Bass....................Length Control
• Reverb:	Digital Reverb
• Multi-Tremolo/Vibrato:	Upper tab, Lower tab, Vibrato, slow/fast...**Record** (Tremolo Speed)
• Effect Conductor:	Effect ......chorus, celeste, phaser Selectors...U. Tab Voices, U & L Percussive Presets, U & L Orchestral Presets, U & L Solo Synthe Presets, L. Tab Voices
• Glide:	Foot SW (left)
Techni-Chord:	On, Close/Open

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Drum Percussion

- Rhythm selectors: March, Shuffle, Swing I, Swing II, 8 Beat, Funk Rock, 16 Beat, Samba Rock, Ballad, Swing Rock, Disco I, Disco II, Rumba, Guaracha, Bossanova I, Bossanova II, Mambo, Cha-Cha, Samba, Baion, Waltz, Tango, Jazz Waltz
- Arrange Percussion: I, II, III
- Drum Percussion Controls: Volume, Mellow, On-Start/Stop, Synchro, Glide/Rhythm—Foot SW, Tempo Control, Tempo Set
- Tempo Set: I, II, Manual, Fine, Tempo Control...**Record**
- Fill-In & Intro: I, II, Solo (Foot Switch R)

Rhythmic Orchestra: Rhythmic, Melodic...I/II, Volume

Program Chord Computer (PCC): **Record**, PCC, Cancel

- Chord Composer: Lower Keyboard... ├♩─, ◀, ▶, ⌒⊣, ⌒⊣, ⊢⊣, 𝄋 𝄌, D.S, →|, ⊂⊃, ⊣⊢
- Auto Play Chord: Fingered, Memory, Cancel

Program Rhythm Computer (PRC): **Record**, Composer I, II, III, Rhythm Sequencer, Lower Keyboard...Clear, Beat, 2nd bar, Triplet, Accent/Pitch I, II, III, 0~15 ├♩─, ◀, ▶, ⌒⊣, ⌒⊣, ⊢⊣, 𝄋 𝄌, D.S, →|, ⊂⊃, ⟷, ⊣⊢

Programmable Function Switches: **Record**, Knee Lever, Foot Switch R, L, Full-Bass Pedal

Transpose: **Record**, ✦ (Transpose), G ~ C ~ F♯/G♭

Tuning: Free Set, Pitch Control (−, +)

Others: Power Switch, Main Volume, Expression Pedal, Headphone Jack, AUX Jack, Microphone Jack (with Volume), Line Out terminal (2ch/3ch), Ext I/O (FD) Terminal, Initial (Lower Keyboard)

Speakers: 30cm 5Ω×1, 20cm 8Ω×3, Horn Tweeter 6cm 6Ω×2

Maximum Output: 230W (4-channel)

Power Requirement: 420W, AC 120/220/240V, 50/60Hz
580VA, AC 120V, 50/60Hz...North America, Taiwan

Cabinet Dimensions: (W×H×D) 120.8cm (47 9/16")×107.2cm (42 7/32")× 68.4cm (26 15/16")

Net Weight (without bench): 110kg (242.5 lbs)

Accessory: Digital Memory Pack (SY-P2)×1

- Common "**Record**" switch is used for these switches.
- Specifications subject to change without notice.

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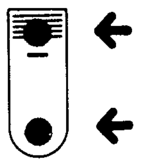
ARRANGMENT OF CONTROL PANEL

All buttons and tablets are equipped with LEDs which light up when in operation.

Tablet

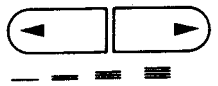


- Turns off when this part is pressed.
- The LED lights up and the tablet turns on when this part is pressed.

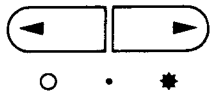
Controls

The volumes and effects on the organ are controlled by 3 or 4-stage buttons, except for rhythm tempo controls.

Volume, Effect



- When the right button is pressed, the LED on the button lights up and the volume or effect is at maximum.
- If both buttons are pressed simultaneously, the volume or effect returns to the normal, or intermediate, level and both LEDs turn on.
- When the left button is pressed, the LED on the button lights up and the volume or the effect is decreased.
- If the left button is pressed again, the volume or effect is at minimum and the LED turns off.



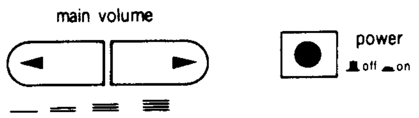
Harmonic control

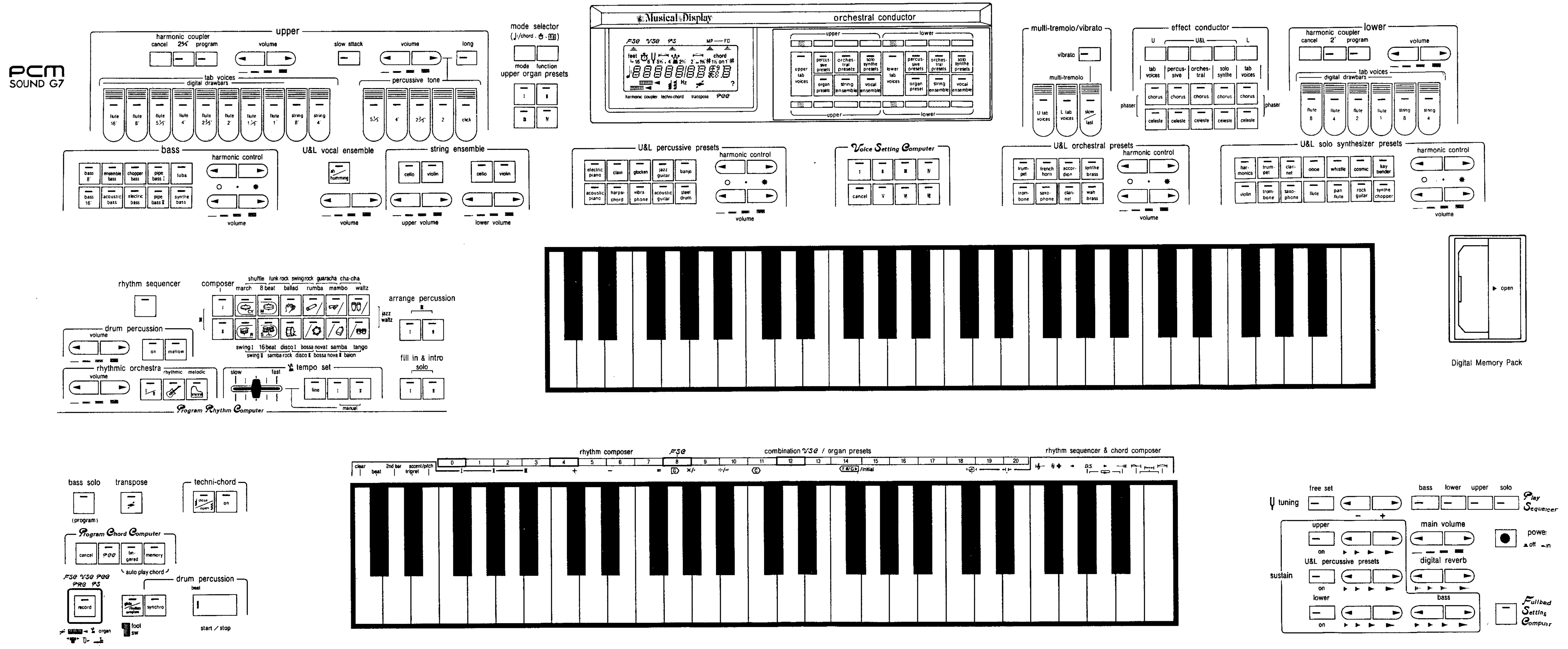
- When the right button is pressed, the brilliance of the sound is increased.
- If both buttons are pressed simultaneously, the sound returns to its normal, or intermediate, level.
- When the left button is pressed, the sound is "softened".

Power/Main Volume Controls

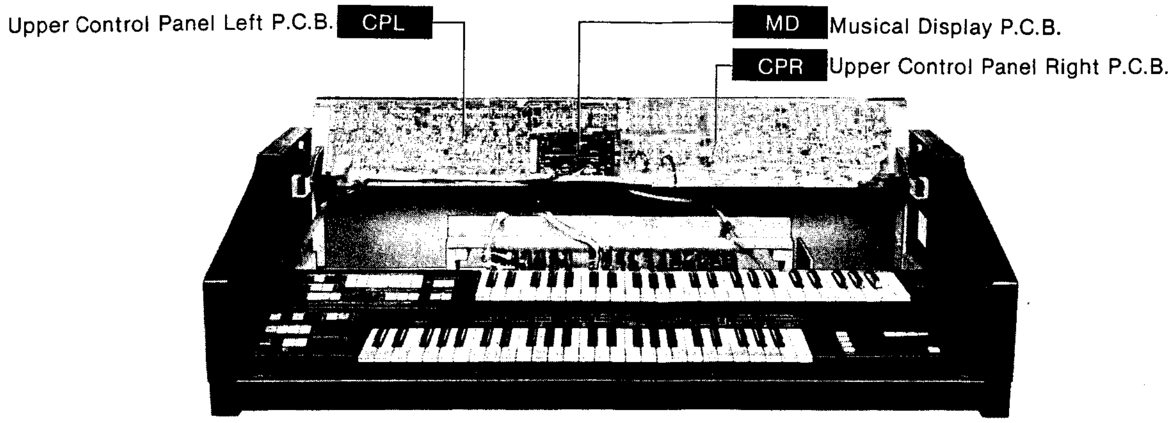
Pressing the power switch turns the organ on.

Main Volume adjusts the loudness of the entire organ.

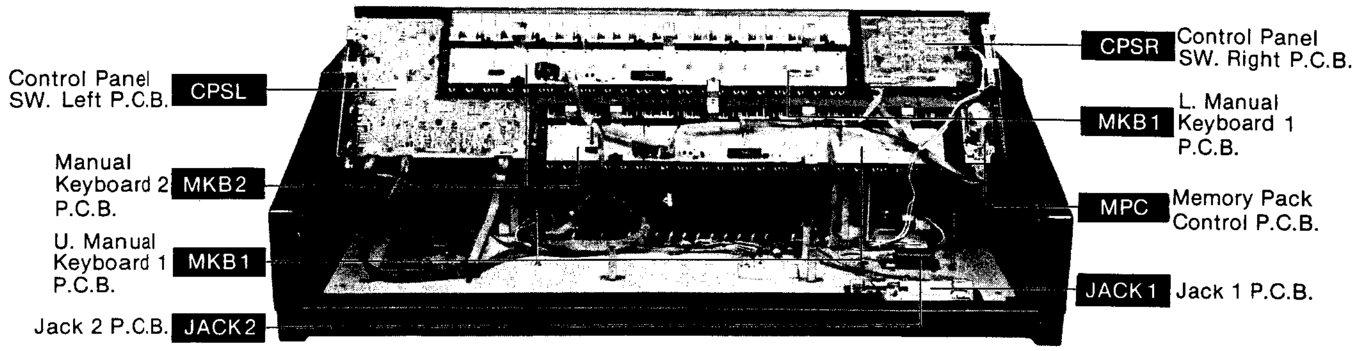

main volume
power
off
on


PCM SOUND G7
upper
harmonic coupler
cancel
program
volume
slow attack
long
tab voices
digital drawbars
percussive tone
mode selector
mode
function
upper organ presets
Musical Display
orchestral conductor
multi-tremolo/vibrato
vibrato
multi-tremolo
effect conductor
phaser
chorus
celeste
lower
bass
harmonic control
volume
U&L vocal ensemble
string ensemble
upper volume
lower volume
U&L percussive presets
Voice Setting Computer
U&L orchestral presets
U&L solo synthesizer presets
rhythm sequencer
composer
drum percussion
rhythmic orchestra
tempo set
slow
fast
arrange percussion
fill in & intro
Program Rhythm Computer
Digital Memory Pack
open
bass solo
transpose
techni-chord
Program Chord Computer
cancel
memory
auto play chord
record
drum percussion
start / stop
rhythm composer
combination / organ presets
rhythm sequencer & chord composer
tuning
free set
upper
U&L percussive presets
sustain
lower
main volume
digital reverb
bass
power
Play Sequencer
Fullband Setting Computer

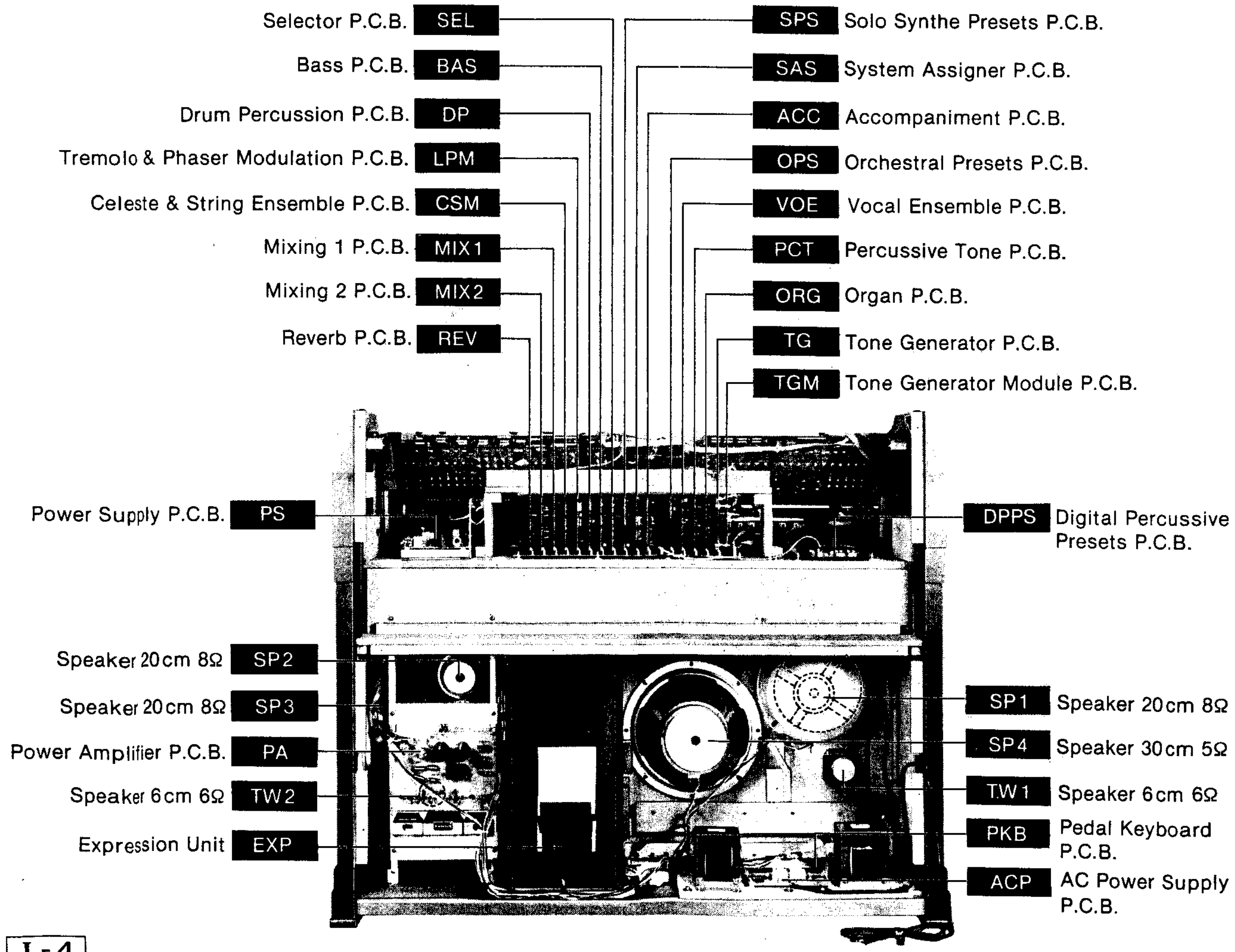
PRINTED CIRCUIT BOARDS LOCATION


Upper Control Panel Left P.C.B. CPL
MD Musical Display P.C.B.
CPR Upper Control Panel Right P.C.B.

[Photo-1]


Control Panel SW. Left P.C.B. CPSL
Manual Keyboard 2 P.C.B. MKB2
U. Manual Keyboard 1 P.C.B. MKB1
Jack 2 P.C.B. JACK2
CPSR Control Panel SW. Right P.C.B.
MKB1 L. Manual Keyboard 1 P.C.B.
MPC Memory Pack Control P.C.B.
JACK1 Jack 1 P.C.B.

[Photo-2]

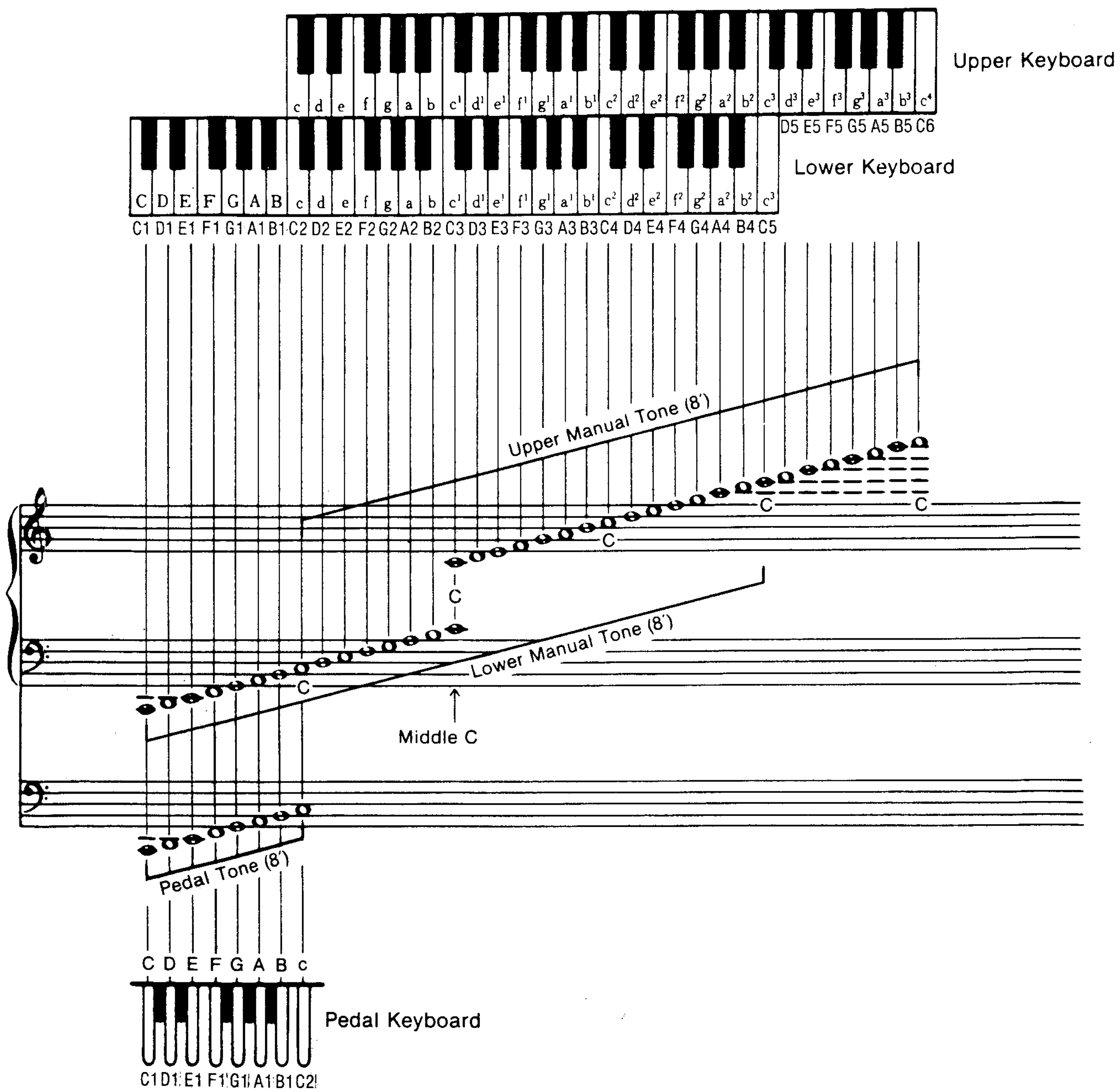

Selector P.C.B. SEL
Bass P.C.B. BAS
Drum Percussion P.C.B. DP
Tremolo & Phaser Modulation P.C.B. LPM
Celeste & String Ensemble P.C.B. CSM
Mixing 1 P.C.B. MIX1
Mixing 2 P.C.B. MIX2
Reverb P.C.B. REV
SPS Solo Synthe Presets P.C.B.
SAS System Assigner P.C.B.
ACC Accompaniment P.C.B.
OPS Orchestral Presets P.C.B.
VOE Vocal Ensemble P.C.B.
PCT Percussive Tone P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Power Supply P.C.B. PS
DPPS Digital Percussive Presets P.C.B.
Speaker 20cm 8Ω SP2
Speaker 20cm 8Ω SP3
Power Amplifier P.C.B. PA
Speaker 6cm 6Ω TW2
Expression Unit EXP
SP1 Speaker 20cm 8Ω
SP4 Speaker 30cm 5Ω
TW1 Speaker 6cm 6Ω
PKB Pedal Keyboard P.C.B.
ACP AC Power Supply P.C.B.

[Photo-3]

KEYBOARD RANGES

Upper Keyboard	49 Keys	c to c^4 (4 Octaves)
Lower Keyboard	49 Keys	C to c^3 (4 Octaves)
Pedal Keyboard	13 Keys	C to c (1 Octave)

※ An 8-feet compass is used for each keyboard.

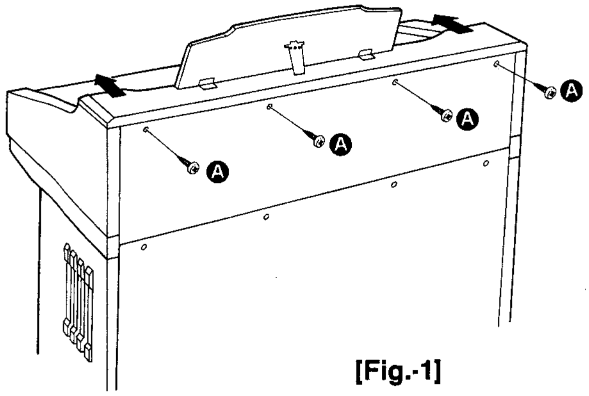

Upper Keyboard
c d e f g a b c¹ d¹ e¹ f¹ g¹ a¹ b¹ c² d² e² f² g² a² b² c³ d³ e³ f³ g³ a³ b³ c⁴
D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
C D E F G A B c d e f g a b c¹ d¹ e¹ f¹ g¹ a¹ b¹ c² d² e² f² g² a² b² c³
C1 D1 E1 F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
Lower Manual Tone (8')
C
Middle C
Pedal Tone (8')
C D E F G A B c
Pedal Keyboard
C1 D1 E1 F1 G1 A1 B1 C2

DISASSEMBLY INSTRUCTIONS

1. Top Cover

a) Remove the 4 setscrews Ⓐ located on the rear board.

b) Remove the top cover, slide it forward and lift.

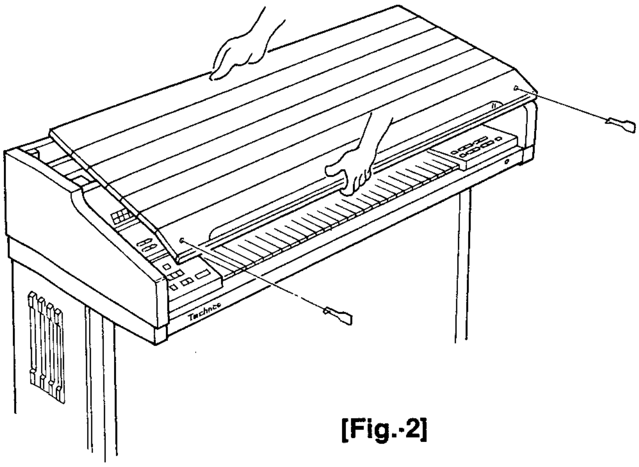


[Fig.-1]

2. Sliding Cover

a) Unlock the sliding cover with the accessory key.

b) After removing the top cover, remove the sliding cover in its fully-closed position.



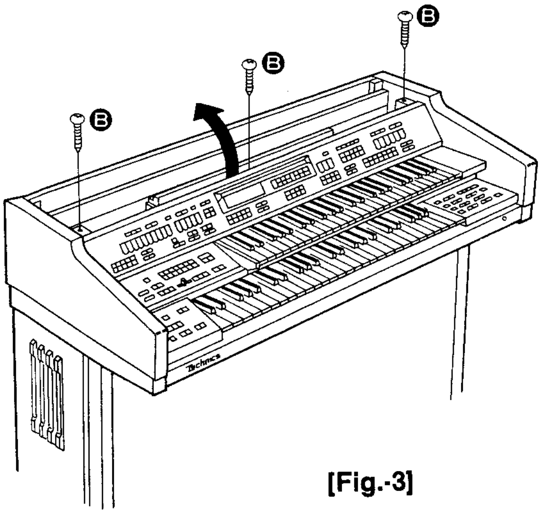
[Fig.-2]

3. Upper Control Panel

a) Remove both top cover and sliding cover according to steps 1 and 2.

b) Remove the 3 red screws Ⓑ which fasten the upper control panel.

c) Then the upper control panel can be opened upwards.



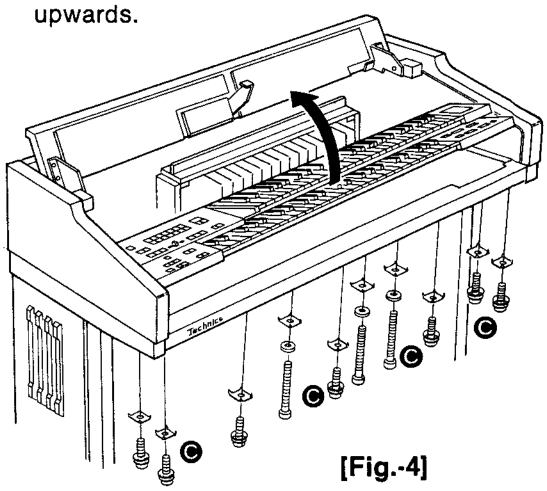
[Fig.-3]

4. Keyboard & End Cover Unit

a) Open the control panel according to steps 1, 2 and 3.

b) Remove the 10 setscrews Ⓒ on the bottom of the shelf-board.

c) Then the keyboard & end cover unit can be opened upwards.



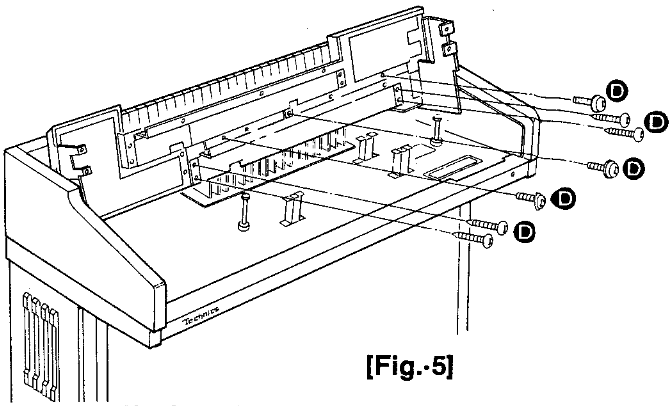
[Fig.-4]

5. Upper Keyboard

a) Open the keyboard & end cover unit according to step 4.

b) Remove the 7 setscrews Ⓓ which fasten the upper keyboard chassis.

c) Then the upper keyboard can be removed.



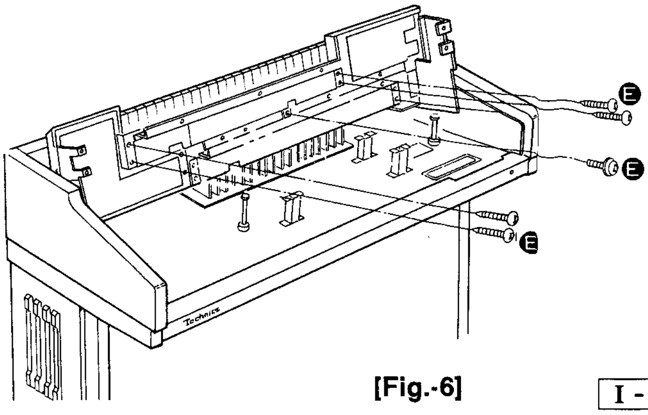
[Fig.-5]

6. Lower Keyboard

a) Open the keyboard & end cover unit according to step 4.

b) Remove the 5 setscrews Ⓔ which fasten the lower keyboard chassis.

c) Then the lower keyboard can be removed.

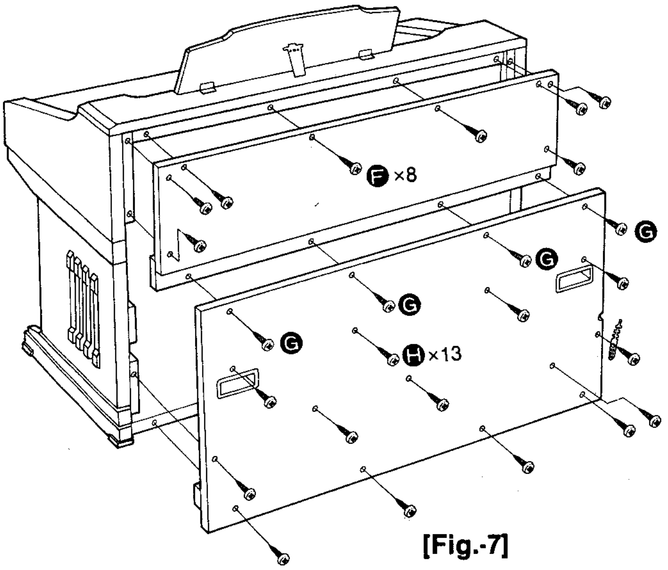


[Fig.-6]

7. Rear Board

a) Upper cabinet section
Remove the 8 setscrews Ⓕ and the 4 setscrews Ⓖ on the rear board.

b) Lower cabinet section
Remove the 4 setscrews Ⓖ and the 13 setscrews Ⓗ on the rear board.



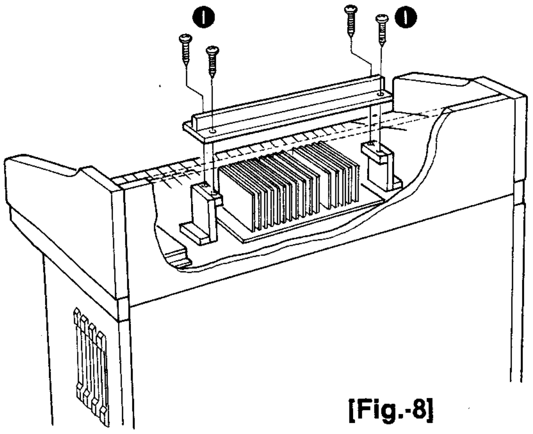
[Fig.-7]

8. Printed Circuit Board (Mother Board Block)

a) Open the control panel according to steps 1, 2 and 3.

b) Remove the 4 setscrews Ⓘ on the printed circuit board retainer plate.

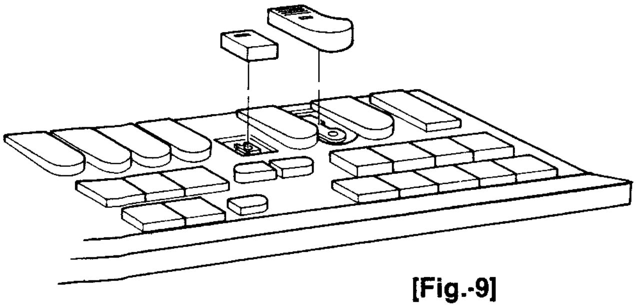
c) Each printed circuit board can be removed from the connector of the mother board.



[Fig.-8]

9. Buttons and knobs

a) All buttons and knobs can be pulled out.



[Fig.-9]

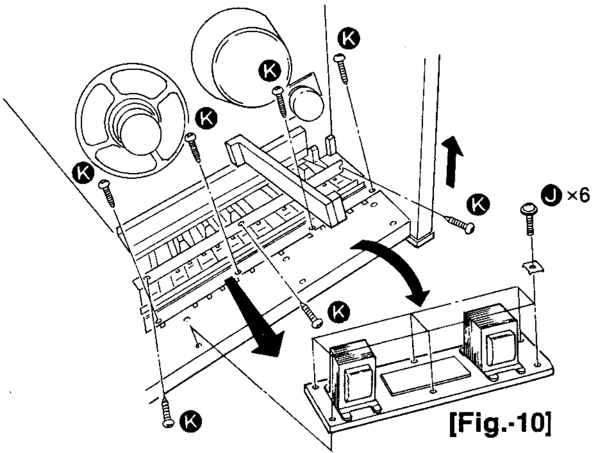
10. Pedal Keyboard

a) Remove the rear board of the lower cabinet.

b) Remove the 6 setscrews Ⓙ which fasten the AC Power unit. Then remove the AC Power unit.

c) Remove the 7 setscrews Ⓚ which fasten the pedal keyboard chassis.

d) Lift the cabinet body, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig.-10]

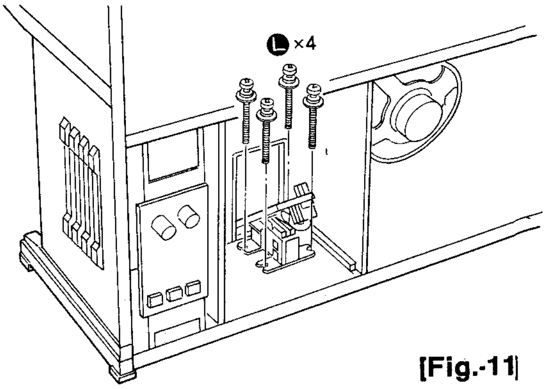
11. Expression Unit

a) Remove the rear board of the lower cabinet.

b) Remove the 4 setscrews Ⓛ which fasten the expression unit.

c) The expression unit can be removed.

d) When replacing the expression lamp, remove the lamp retainer rubber and detach the lamp from the socket.



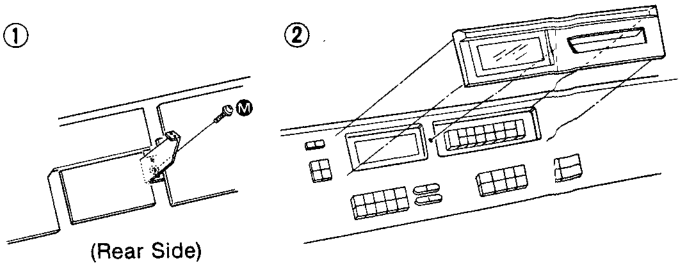
[Fig.-11]

12. Display panel (Musical Display and Orchestral Conductor)

a) Open the upper control panel according to steps 1, 2 and 3.

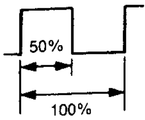
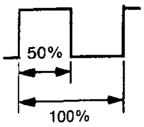
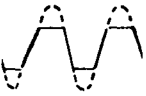
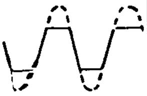
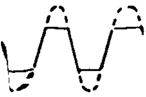
b) Remove the screw Ⓜ which fasten the display panel.

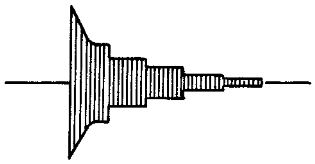
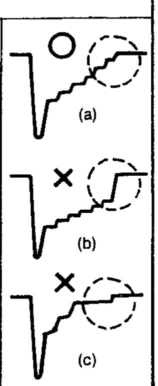
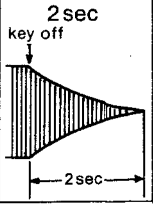
c) Remove the display panel from upper control panel. (The display panel is secured with adhesive tape, but it can be removed by pulling.)

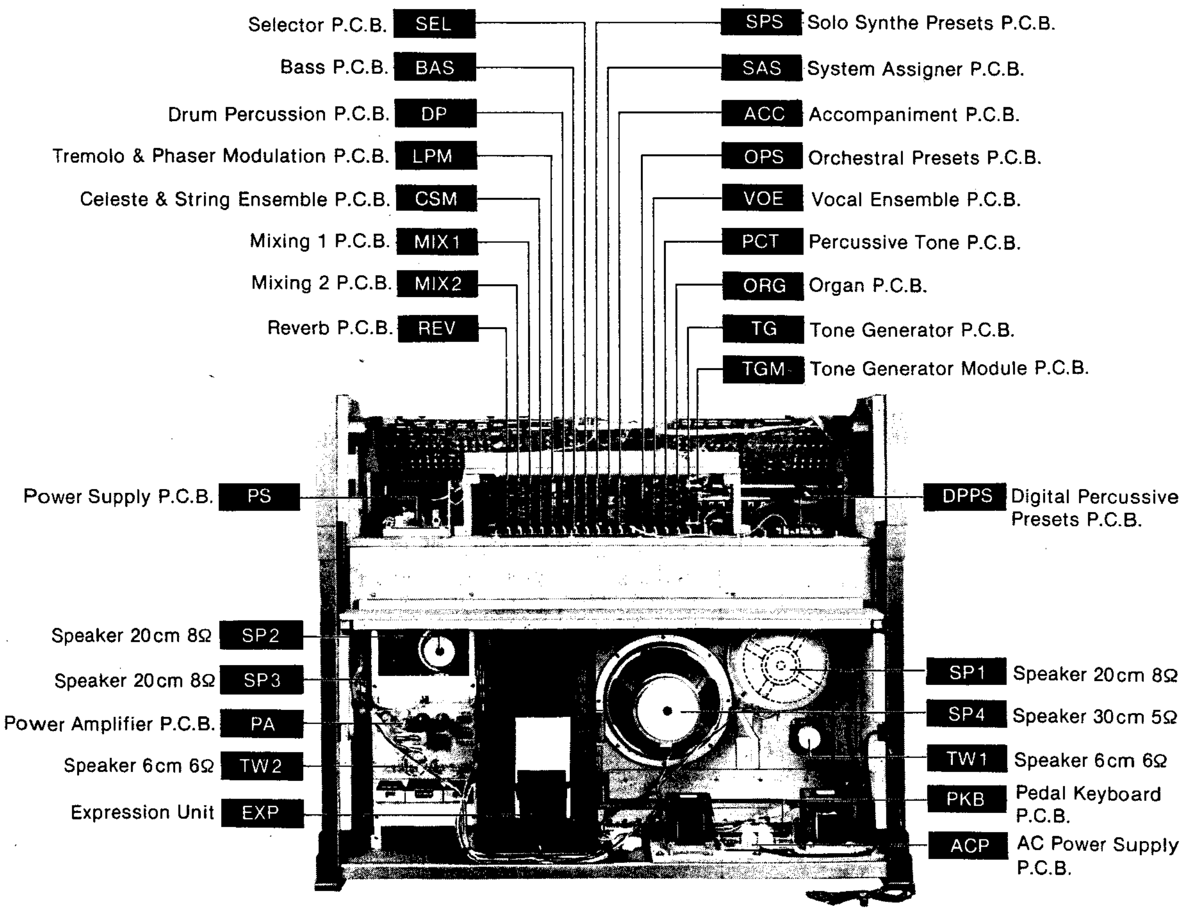


[Fig.-12]

MEASUREMENTS AND ADJUSTMENTS

<table>
<tr><th>ADJUSTMENT</th><th>SETTING</th><th>METER USED</th><th>ADJUSTMENT CIRCUIT BOARD</th><th>ADJ. POINT</th><th>CONNECT METER TO</th><th>METER READING</th></tr>
<tr><td rowspan="2">Tuning (tab)</td><td>tuning (free set) ....off
upper tab voices ....flute 8′
upper keyboard ....A3 key</td><td>Oscilloscope, (Frequency counter)</td><td>Tone Generator Circuit (TG)</td><td>VR1</td><td>MCTC terminal (20cm SP2 speaker)</td><td rowspan="2">
(440Hz)</td></tr>
<tr><td colspan="5">1. Connect an oscilloscope to MCTC terminal of tone generator P.C.B. and adjust VR1 so that the duty ratio of output waveform is 50%.
2. Connect a frequency counter to 20cm SP2 speaker and make the setting as mentioned here, then confirm the frequency is 440Hz.</td></tr>
<tr><td rowspan="2">Tuning (mono-tone)</td><td>tuning (free set) ....off
pedal voices ....bass 8′
pedal keyboard ....A1 key</td><td>Oscilloscope, (Frequency counter)</td><td>Tone Generator Circuit (TG)</td><td>VR2</td><td>MCMC terminal (20cm SP2 speaker)</td><td rowspan="2">
(110Hz)</td></tr>
<tr><td colspan="5">1. Connect an oscilloscope to MCMC terminal of tone generator P.C.B. and adjust VR2 so that the duty ratio of output waveform is 50%.
2. Connect a frequency counter to 20cm SP2 speaker and make the setting as mentioned here, then confirm the frequency is 110Hz.</td></tr>
<tr><td rowspan="3">Output level (manual)</td><td rowspan="3">upper tab voices ....flute 16′, 8′, 4′
upper volume ....max
main volume ....max
expression pedal ......max
celeste ....u. tab voices
upper keyboard ....C3, E3, G3</td><td rowspan="3">Electric voltmeter</td><td rowspan="3">Mixing Circuit 2 (MIX2)</td><td>VR1</td><td>20cm SP1 speaker</td><td>2.0Vrms</td></tr>
<tr><td>VR2</td><td>20cm SP2 speaker</td><td>2.0Vrms</td></tr>
<tr><td>VR3</td><td>20cm SP3 speaker</td><td>3.7Vrms</td></tr>
<tr><td>Bass output level</td><td>bass vices ....bass 8′
bass volume ....max
main volume ....max
expression pedal ......max
pedal keyboard ....A1</td><td>Electric voltmeter</td><td>Bass Circuit (BAS)</td><td>VR1</td><td>30cm SP4 speaker</td><td>7.0Vrms</td></tr>
<tr><td rowspan="2">BBD bias (Celeste)</td><td>upper tab voices ....celeste
upper keyboard ....on</td><td>Oscilloscope Oscillator</td><td>Celeste & String Ensemble Circuit (CSM)</td><td>VR1</td><td>Check point ⑮</td><td rowspan="2"></td></tr>
<tr><td colspan="5">1. Connect the oscilloscope to check point ⑮ of CSM circuit.
2. Disconnect the lead terminal of capacitor C11 (50V 1) connect to No. 7 pin of IC1-1, and input 1kHz sine wave there. Then, adjust the output level of oscillator until the output waveform of check point ⑮ is clipped.
3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.</td></tr>
<tr><td rowspan="2">BBD bias (String ensemble)</td><td>upper string Ensemble
upper keyboard ....on</td><td>Oscilloscope Oscillator</td><td>Celeste & String Ensemble Circuit (CSM)</td><td>VR2</td><td>Check point ㉔</td><td rowspan="2"></td></tr>
<tr><td colspan="5">1. Connect the oscilloscope to check point ㉔ of CSM circuit.
2. Disconnect the lead terminal of capacitor C15 (0.022) connect to No. 7 pin of IC3-1, and input 1kHz sine wave there. Then, adjust the output level of oscillator until the output waveform of check point ㉔ is clipped.
3. Adjust VR2 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.</td></tr>
<tr><td rowspan="2">BBD bias (Tremolo)</td><td>upper tab voices ....tremolo
upper keyboard ....on</td><td>Oscilloscope Oscillator</td><td>Tremolo & Phaser Modulation Circuit (LPM)</td><td>VR1</td><td>Check point ⑲</td><td rowspan="2"></td></tr>
<tr><td colspan="5">1. Connect the oscilloscope to check point ⑲ of LPM circuit.
2. Disconnect the lead terminal of capacitor C52 (50V 1) connect to No. 1 pin of IC19-1, and input 1kHz sine wave there. Then, adjust the output level of oscillator until the output waveform of check point ⑲ is clipped.
3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.</td></tr>
<tr><td rowspan="2">Percussive presets output level</td><td>percussive presets</td><td>DC voltmeter</td><td>Digital Percussive Presets Circuit (DPPS)</td><td>VR2</td><td>C78 (6V 100) ⊖ terminal</td><td rowspan="2">+1.0V</td></tr>
<tr><td colspan="5">1. Connect DC voltmeter to minus (−) terminal of C78 (6V 100), and adjust VR2 so that the voltage is +1.0V.</td></tr>
</table>

ADJUSTMENT	SETTING	METER USED	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Percussive presets DC level	percussive presets ......acoustic piano upper keyboard ....C4 key	Oscilloscope	Digital Percussive Presets Circuit (DPPS)	VR3	Check point ❺	
	1. Connect the oscilloscope to check point ❺ of DPPS circuit. 2. Adjust VR3 so that the waveform on the oscilloscope is equal in level between top and bottom when the C4 key of upper keyboard is turned ON.					
Orchestral presets envelope	orchestral presets ......trumpet harmonic control ......center upper keyboard ....C4 key	Oscilloscope	Orchestral Presets Circuit (OPS)	VR1	Check point ⓲	
	1. Set the organ to the above-mentioned conditions. 2. Connect the oscilloscope to check point ⓲ of OPS circuit. 3. Adjust VR1 so that the envelope waveform of trampet is as shown in Fig. (a) on the right when C3 key of upper keyboard is turned ON.					
Reverb time 1	solo synthe presets ...Pan flute	Oscilloscope	Reverb circuit (REV)	VR1	Check point ⓫	 2sec key off 2sec
Reverb time 2	1. Connect an oscilloscope to each check point of REV circuit. 2. Adjust each VR so that the attenuation time of waveform is 2sec. when upper key is turned from ON to OFF. The upper key position of each adjustment point is as follows. • Reverb time 1: F#1 • Reverb time 2: G#3 • Reverb time 3: D1			VR2	check point ⓬	
Reverb time 3				VR3	Check point ⓭	


Selector P.C.B. SEL
Bass P.C.B. BAS
Drum Percussion P.C.B. DP
Tremolo & Phaser Modulation P.C.B. LPM
Celeste & String Ensemble P.C.B. CSM
Mixing 1 P.C.B. MIX1
Mixing 2 P.C.B. MIX2
Reverb P.C.B. REV
SPS Solo Synthe Presets P.C.B.
SAS System Assigner P.C.B.
ACC Accompaniment P.C.B.
OPS Orchestral Presets P.C.B.
VOE Vocal Ensemble P.C.B.
PCT Percussive Tone P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Power Supply P.C.B. PS
DPPS Digital Percussive Presets P.C.B.
Speaker 20cm 8Ω SP2
Speaker 20cm 8Ω SP3
Power Amplifier P.C.B. PA
Speaker 6cm 6Ω TW2
Expression Unit EXP
SP1 Speaker 20cm 8Ω
SP4 Speaker 30cm 5Ω
TW1 Speaker 6cm 6Ω
PKB Pedal Keyboard P.C.B.
ACP AC Power Supply P.C.B.

PRECAUTION FOR REPAIR

- Trouble often occur due to faulty operation of your electronic organ if you are not completely familiar with its mechanisms. Therefore, if your organ shows the following symptoms, please check the instrument before repair.

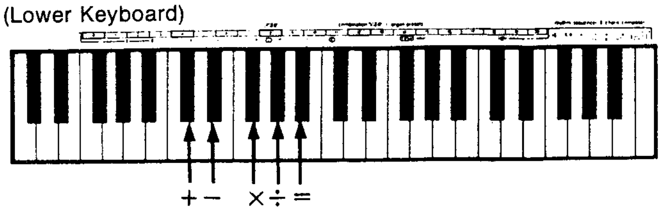
Phenomenon	Cause and remedy
Voices of flute tablets do not sound.	The flute volume levels are adjustable for each individual tablet. If set to 0, however, the voice of the tablet will not sound. Adjust the flute tablets to the desired levels.
An error buzzer sounds when a key on the lower keyboard is pressed, making playing impossible.	If the mode button to the left of the musical display is set to the computation mode, playing is not possible. Press button to display either the metronome or the stopwatch mode.
Different voices are heard in the lower and upper half keys on the upper keyboard.	The lower portion of the upper manual keyboard is used to sound the lower manual voices when the lower manual keyboard is required for programming functions.
A rhythm does not start or no rhythm sounds.	•No rhythm sounds if the drum percussion on button is turned off. •If the PCC button has no stored chords. No rhythm will start when turned on. Press the cancel button. •If the Composer button has no stored rhythm patterns, no rhythm will sound. Select other rhythm buttons.
Rhythm tempo control remains inoperative.	When the tempo set button is turned on: •The tempo control does not operate if the fine button is turned off. •If the fine button is turned on, fine adjustment possible in the tempo control. Press the tempo set buttons I and II simultaneously to turn them off. This allows the rhythm tempo to be adjusted with the tempo control.
The knee lever, foot switches and fullbass pedal do not operate properly. For example, the knee lever does not turn the sustain function on and off.	Any functional on and off operation other than the factory-presets are storable in these switches. For example, the knee lever can turn the Techni-Chord on and off. Store your favorite functions to turn them on and off.
The fast multi-tremolo speed is improper.	The fast multi-tremolo speed is preadjustable. Adjust to your favorite speed.
Not turning ON if the slow/fast tablet of multi-tremolo or techni-chord ON button is pressed.	If these functions are programmed in the knee lever and the knee lever is in raised position, these tablet and button are not turned on. When the knee lever is tilted down, the tablet and button can be turned on and off.
The contents of the Transpose, Program Chord Computer, Fullband Setting Computer, etc. cannot be stored.	After pressing the record, depress the necessary buttons within 5 seconds. The record button turns off after a lapse of 5 seconds, making storage operation impossible. Press the record button again.
When storing the created tones and effects in the Voice Setting Computer, voices other than those desired are stored.	•To store your created tones and effects, press the I to VII buttons of the Voice Setting Computer while the record button is held down. •To select your favorite voice from the 20 factory-preset voices, press the record button and depress one of the I to VII buttons on the Voice Setting Computer within 5 seconds. Then press the key corresponding to the preferred voice of the keys 1 to 20 on the lower keyboard. Finally press the selected I to VII button again.
Storage is not possible with the Program Chord Computer.	•Check that the PCC button is slowly flashing. Pressing the Fingered Mode button turns off the record button, making storage operation impossible. •Do not release the left hand (Chord designation) before pressing the measure keys (├─┤, ├┼┤, and ├┼┼┤) keys.

Phenomenon	Cause and remedy
When the rhythm stored in the Rhythm Composer is played, the Rhythmic Orchestra and automatic bass accompaniment do not sound.	• Store patterns in the rhythmic and melodic buttons of the Rhythmic Orchestra, just as you would with other rhythmic instrumental effects. • The bass of auto play chord sounds with a drum bass, which should be stored.
Programs cannot be stored in the Play Sequencer or the Full-band Setting Computer or playback is not possible.	• These functions need a digital memory pack. Insert the memory pack in the slot to the right of the upper keyboard. • Storage is not possible if the memory protector on the memory pack is turned on. Turn it off during storage operation.
The stored registration cannot be used when performance is started with the Play Sequencer button turned on.	To use the stored registration, turn on the Fullband Setting Computer button and then press the 1 key on the lower keyboard.
The stored introduction is not reproduced during automatic performance.	• Set the beginning of a song, such as an introduction before turning on the record button. • To add an introduction after the record button and Play Sequencer button flash, set it after turning on the Fullband Setting Computer button. Then turn off the Fullband Setting Computer button.
No storage is possible even when the record button and Play Sequencer button are slowly flashing.	• No storage is possible when the Fullband Setting Computer button is turned on. Turn it off before playing. • If any Play Sequencer button is lit, press the start/stop button for automatic performance of the stored part. Another part can then be stored.
The quick rhythm tempo is delayed when the Play Sequencer is used.	This occurs when too many tones are played at one time. Slow down the tempo (to about ♩ =250) or reduce the number of tones played at a time.
Different tones and effects are stored in the Fullband Setting Computer (FSC).	If the Voice Setting Computer (VSC) function is selected, the stored contents in this button are stored into the FSC. When the tones and effects selected by the VSC are changed, store them in the VSC again before storage in the FSC.
The cabinet and slide cover become heated to some degree.	The Technics organ has a built-in power source that heats the cabinet and slide cover to some degree. This is not an indication of trouble.
The buttons, tablets, keyboards, etc. malfunction.	• Press the Fullband Setting Computer button first to turn it on and then depress the initial key on the lower keyboard. • If the buttons, tablets, keyboards, etc. do not return to normal, turn the power switch off once, then turn on again.
Nine or more keys of upper or lower keyboard are simultaneously depressed, only 8 keys make sound.	It is designed so that upper and lower keyboards can make sound only up to 8 keys when harmonic coupler is not provided. • Priority is given to 8 keys of higher-pitched sound.
Upper or lower keyboard makes sound only to 4 tones.	With harmonic coupler provided, each keyboard can simultaneously sound only up to 4 tones. • Priority is given to 4 keys of higher-pitched sound.
To octave sounds of flute 2′, $1^1/_3$′, 1′ are repeated.	The highest pitched sound of flute 2′ (c^4 key), five keys in the top octave part of flute $1^1/3$′ ($f^3 \sim c^4$ key), and upper portion of flute 1′ ($c^3 \sim c^4$) are designed to be repeated.

EXPLANATION OF FUNCTIONS

1. Calculation Functions

When the mode button is pressed, the relations of tempo, measures and performance time are calculated.
Arithmetic calculations are also possible for counting the number of measures.


(Lower Keyboard)
+ −
× ÷ =

(1) Arithmetic Calculations

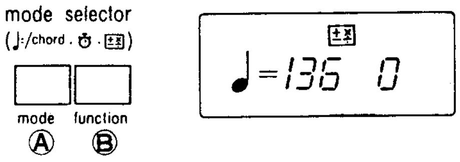
Use keys 0 to 9 and black keys of 4 to 10 of the lower keyboard.
Up to three digits can be calculated. If the answer is more than three digits or results in a negative figure, the error lamp (E) lights up in the Musical Display.

(2) Calculation of tempo and performance time, number of measures.

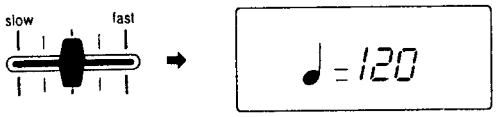
Example 1. Calculate the time required to perform a tune of 4/4 meter for 40 measures at a tempo of ♩= 120.

<Operation>

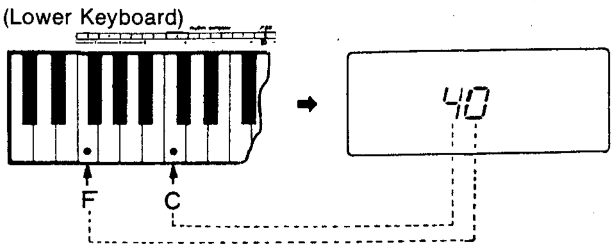
1. Press mode button Ⓐ twice to set the Musical Display in the calculation function.


mode selector
(♩/chord · ⏱ · ±×)
mode
function
Ⓐ
Ⓑ
±×
♩=135 0

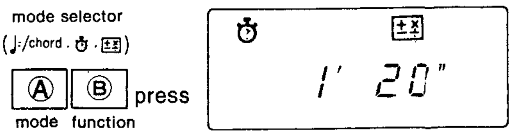
2. Slide the tempo lever to set to ♩= 120.


slow
fast
♩=120

3. Specify the number of measures by using keys 0 to 9 in the lower keyboard.
   In case of 40 measures, press keys C and F in this order.


(Lower Keyboard)
40
F
C

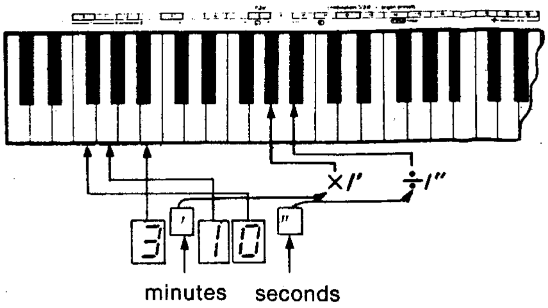
4. Press the function button Ⓑ, then the performance time is displayed.

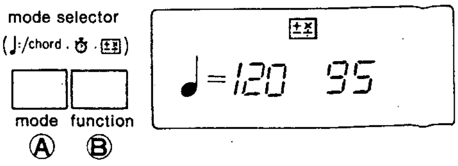

mode selector
(♩/chord · ⏱ · ±×)
Ⓐ
Ⓑ
press
mode
function
⏱
±×
1' 20"

Example 2. When playing a tune of 4/4 meter at ♩= 120 tempo for 3 minutes and 10 seconds, how many measures are performed?

<Operation>

- Press mode selector Ⓐ twice (calculation function).
- Slide tempo level to ♩= 120.
- Press function button Ⓑ.
- Specify the performance time by using key 0 to 9 of the lower keyboard and black keys of 8 to 10.
  - * When entering the time in minutes and seconds, key (seconds) of ["] may be omitted.
    But when entering the time in seconds, that is, less than a minute, key (seconds) of ["] can not be omitted.
- Press the function button Ⓑ again, then the number of measures is displayed.


×/'
÷/"
3
'
10
"
minutes
seconds

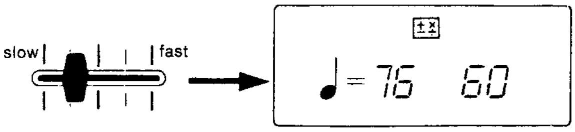

mode selector
(♩/chord · ⏱ · ±×)
mode
function
Ⓐ
Ⓑ
±×
♩=120 95

Example 3.

What is the tempo when a tune of 4/4 meter is played for 60 measures in 3 minutes and 10 seconds?

<Operation>

- Press the mode selector Ⓐ twice (calculation function).
- Press the function button Ⓑ, and specify 3′10″ by using the lower keyboard.
- Press the function button Ⓑ again (at the same time, the tempo and number of measures corresponding to the tempo lever position are shown in the Musical Display).
- Slide the tempo lever to 60 measures.
- The tempo is displayed simultaneously.



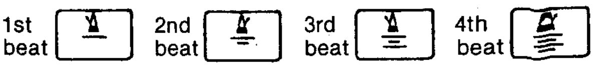
* When calculating a 3/4 time tune, press the waltz or jazz waltz button of the drum percussion section. In the case of a 2/4 or 4/4 time tune, press other drum percussion button.

A Summary of Musical Displays

Operation \ Model	G7		C600	
Basic display (In C600, indicator of mode button light.)	Tempo, beats (NOTE)	♩-120	Tempo	♩-20
Press function button	Chord name	G7		
Press mode button (once). (In C600, the indicator goes out)	Stopwatch	⏱	Chord name	G7
Press function button (1′)	Reset of stopwatch	00′ 00″		
Press mode button (second time)	Calculation function, arithmetic calculations (tempo, measures)	±× ♩-120 9	Stopwatch	⏱
Press function button (2′)	Calculation function (performance time)	±× 1′ 20″		
Press mode button (third time)	The musical display is reset, and returns to basic display. Indicator of mode selector lights up.			

Note 1.

In the basic display mode of G7, F3, the progression of the beat is displayed while the rhythm is running.



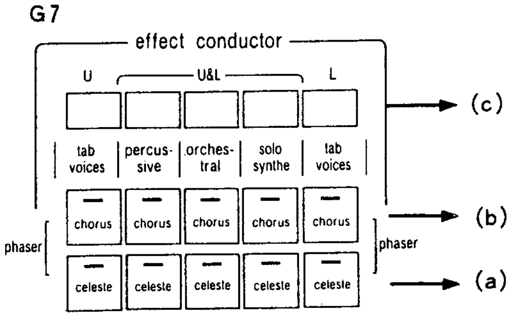
Note 2.

When chord name are shown in the Musical Display, those having black keys for the root of chord, (except F♯) are indicated by the ♭ (flat) series chord names.

Root of Chord	C♯	D♭	D♯	E♭	F♯	G♭	G♯	A♭	A♯	B♭
Musical Display	D♭		E♭		F♯		A♭		B♭	

2. Effect Conductor

(Chorus/celeste/phaser effect)


G7
effect conductor
U
U&L
L
tab voices
percussive
orchestral
solo synthe
tab voices
chorus
celeste
phaser
phaser
(c)
(b)
(a)

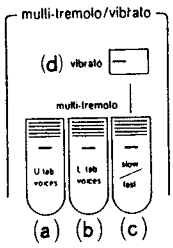
When button (a) is pressed, the celeste effect is applied to provide each tone group with depth and breadth.
When button (c) is pressed, the celeste effect is eliminated.

In model G7, when button (b) is pressed, the chorus effect is applied to each tone group, and when buttons (a) and (b) are pressed simultaneously, the phaser effect is given.

These effects are cancelled when button (c) is pressed.
(Phaser effect: A special effect to "roll" the sound slowly while varying the tone.)

The celeste effect is particularly effective in a large ensemble.
∗ These effects are not applied to the percussive tone.

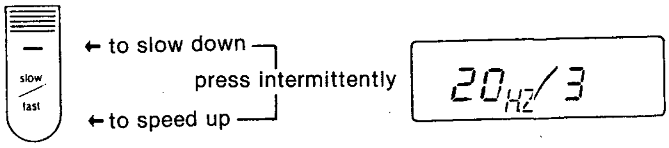
3. Multi-tremolo/Vibrato


multi-tremolo/vibrato
(d) vibrato
multi-tremolo
U tab voices
L tab voices
slow fast
(a)
(b)
(c)

The speed of the fast and slow tremolo can be regulated.
Both tremolo speeds are variable. The higher speed is controlled by the U tab voices (a), and the lower speed by the L tab voices (b).

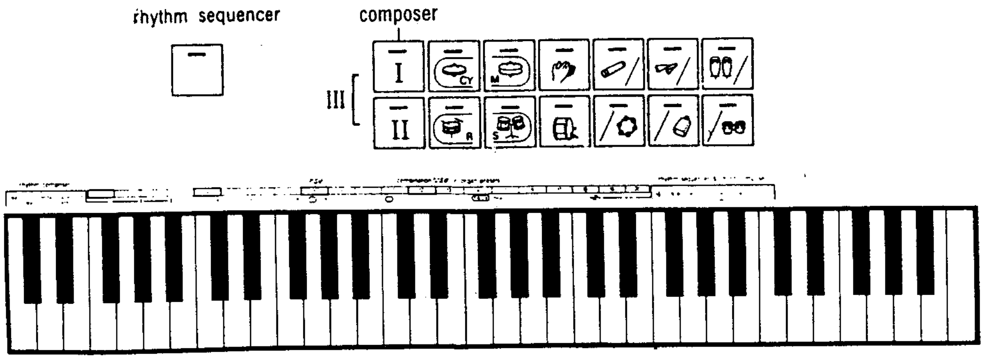
• Setting of tremolo speed

[Operation]


slow
fast
← to slow down
press intermittently
← to speed up
20Hz/3

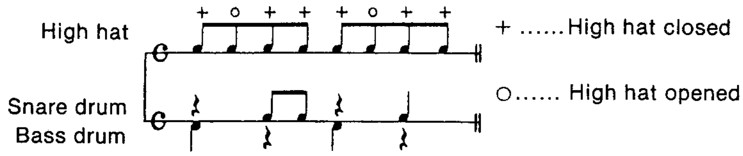
- Press record button
- Press U tab voices (a) or L tab voices (b).
- Adjust the speed with slow/fast button (c).
  (At this time, the corresponding frequency apperas in the Musical Display.)
- Press the record button again.
  When button (a) or (b) is pressed while the LED of button (c) is lit, the tremolo effect can be applied to respective tab voice of the upper and lower keyboards. The tremolo speed is variable in 11 steps in the range 8.4∿30.5Hz for high pitch, and 4.9∿8.1Hz for low pitch. Set to a proper step.
  (The standard speed is 20.3Hz for high pitch, and 6.4Hz for low pitch.)
  When vibrato button (b) is pressed, the vibrato effect can be applied instead of the tremolo effect. However, the vibrato speed is not adjustable.

4. How to use the Program Rhythm Computer

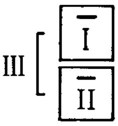

rhythm sequencer
composer
III
I
II

• Program Rhythm

A desived rhythm pattern may be created and preset by using the tones of the musical instruments drawn on the buttons of the drum percussions section.
For instance, when creating the following rhythm pattern:

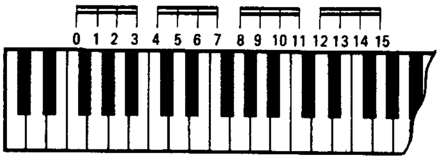

High hat
Snare drum
Bass drum
+ o + + + o + +
+ ......High hat closed
o...... High hat opened

- Press the record button.
- Select composer I, II, or III. For example, composer I.



(For composer III, press I and II at a time.)

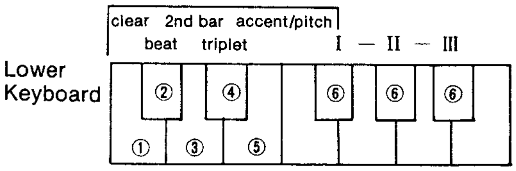
- Press the clear key (the left end key in the lower keyboard).
  In order to eliminate the metronome sound prepared in composer I, II, III in standard state.
- Store the rhythm pattern by using keys 0 to 15 in the lower keyboard.


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

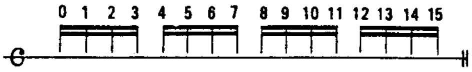
(1) Clear key: clears the contents of the active composer location.

(i) To erase all contents of the composer:
- Press the record button.
- Press the button of the composer to be erased.
- Press the clear key.

(ii) To erase a specified instrument tone from the composer:
- Press the record button.
- Press the composer button.
- Press the specified instrument button.
- Press the clear key.

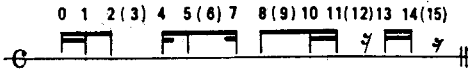

clear
beat
2nd bar
triplet
accent/pitch
I — II — III
Lower Keyboard
①
②
③
④
⑤
⑥
⑥
⑥

(iii) To erase part of rhythm pattern from the composer:
- Press the record button.
- Press composer I button.
  - * At this time press clear key once for safety precaution.
- Press high hat button.
- Press all of keys 0 to 15 in the lower keyboard.
  - * When the rhythm is started here, the high hat is performed in the following rhythm pattern.


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

* Next erase part of the rhythm pattern.

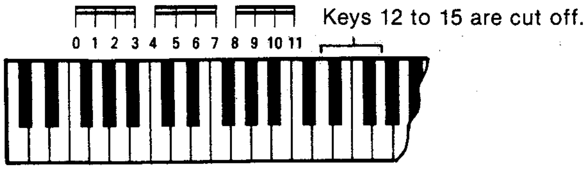
- With the clear key being depressed, press keys 3, 6, 9, 12, and 15.
  - * When the rhythm is started again, the rhythm pattern of the high hat varies as follows.
    ( ) parentheses indicate the erased sounds.


0 1 2 (3) 4 5 (6) 7 8 (9) 10 11 (12) 13 14 (15)

(2) Beat key: Meter specifies.

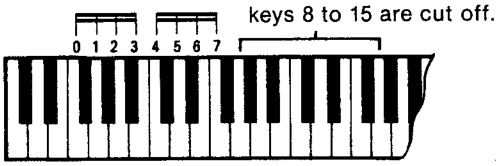
(i) 3/4 meter

- Press record button, and select one of composers I to III.
- With the beat key being depressed, store a rhythm pattern by using keys 0 to 11 in the lower keyboard.
  - * When the beat key is pressed, the fourth beat of the rhythm computer is cut off.


0 1 2 3 4 5 6 7 8 9 10 11
Keys 12 to 15 are cut off.

(ii) 2/4 meter

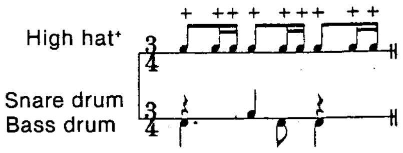
- Press record button, Select a composer.
- While pressing the beat key, press key 2 in the lower keyboard.
  - * As a result, the third and fourth beats of the rhythm computer are cut off.
- Store a rhythm pattern by using keys 0 to 7 in the lower keyboard.


0 1 2 3 4 5 6 7
keys 8 to 15 are cut off.

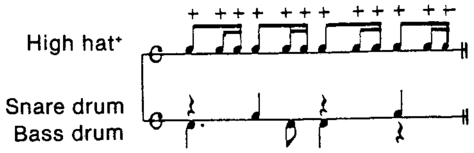
* It is also possible to change to a rhythm pattern of 3/4 by (cutting the fourth beat of the rhythm pattern of 4/4 meter stored in the composer by) using the beat key.

[Operation]

- Store the following rhythm pattern in composer I.


High hat*
Snare drum
Bass drum

- Make sure the record button indicator is lit, and press the beat key. As a result, the rhythm pattern becomes as follows.


High hat*
Snare drum
Bass drum

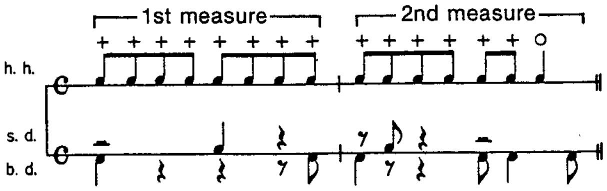
* While the indicator of the record button is lit, if the clear key is pressed while the beat key is press, the initially stored 4/4 rhythm pattern is restored.

(3) 2nd bar key

A rhythm forming a pattern can be created in two measures.

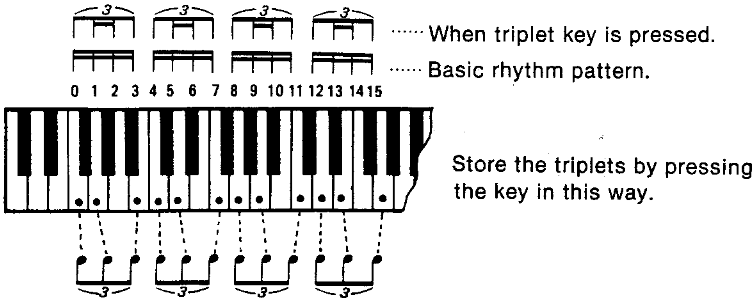
[Operation]

- Press record button, and select one of the composers.
- Store the first measure of the following rhythm pattern.
- While pressing the 2nd bar key, store the second measure.


1st measure
2nd measure
h. h.
s. d.
b. d.

(4) Triplet key

This key is used to compose a rhythm pattern including triplets.
This function is indispensable in a shuffle or swing rhythm.
When the triplet key is pressed, the basic rhythm pattern of the rhythm computer becomes as follows.



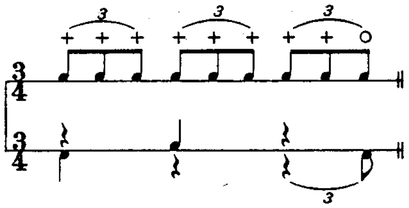
······When triplet key is pressed.
······Basic rhythm pattern.

Store the triplets by pressing the key in this way.

Now let us make the following rhythm pattern by combining the triplet key and beat key.

- Press record button, and select a composer.
- While pressing beat and triplet keys, make a pattern of high hat (closed) by pressing keys 0, 1, 3, 4, 5, 7, 8, 9 in the lower keyboard.

Similarly place a high hat (open) in key 11 in the lower keyboard. Then indicate the bass drum and snare drum by the following lower keyboard numbers while pressing the beat and triplet keys.

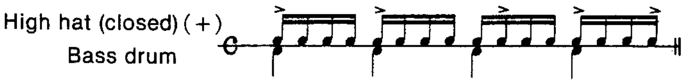


(5) Accent/pitch key

(i) To accentuate a rhythm.

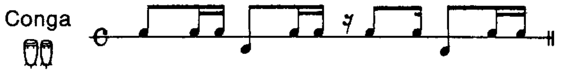
[Operation]

During memory operation, store the notes to be stressed while pressing the accent/pitch key.



(Press the acc/pitch key when storing the notes given the stress mark in the score.)

(ii) In an instrument having two pitches, the note of the higher pitch is usually stored. However, the lower note is stressed only when it is stored while pressing the acc/pitch keys.

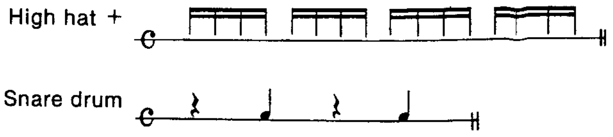


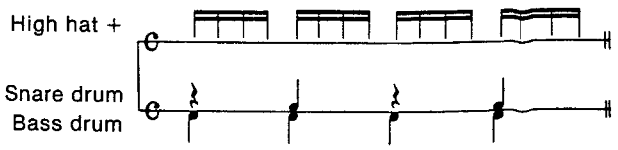
(When storing the stressed notes of the lower pitch in the score, press the acc/pitch key in memory operation, so that the lower notes are accentuated.)

(6) Preset Pattern key

Widely used rhythm patterns can be preset in three types depending on the characteristics of each instrument.
For instance, when storing a high hat, press the record button, composer button, and high hat (closed) button.

- When the preset pattern I key (F♯) is pressed the following rhythm pattern is stored.
- Press the snare drum pattern, and preset pattern I key again.
- Finally press the snare drum button, and push the preset pattern I key, then a 16-beat rhythm is completed.

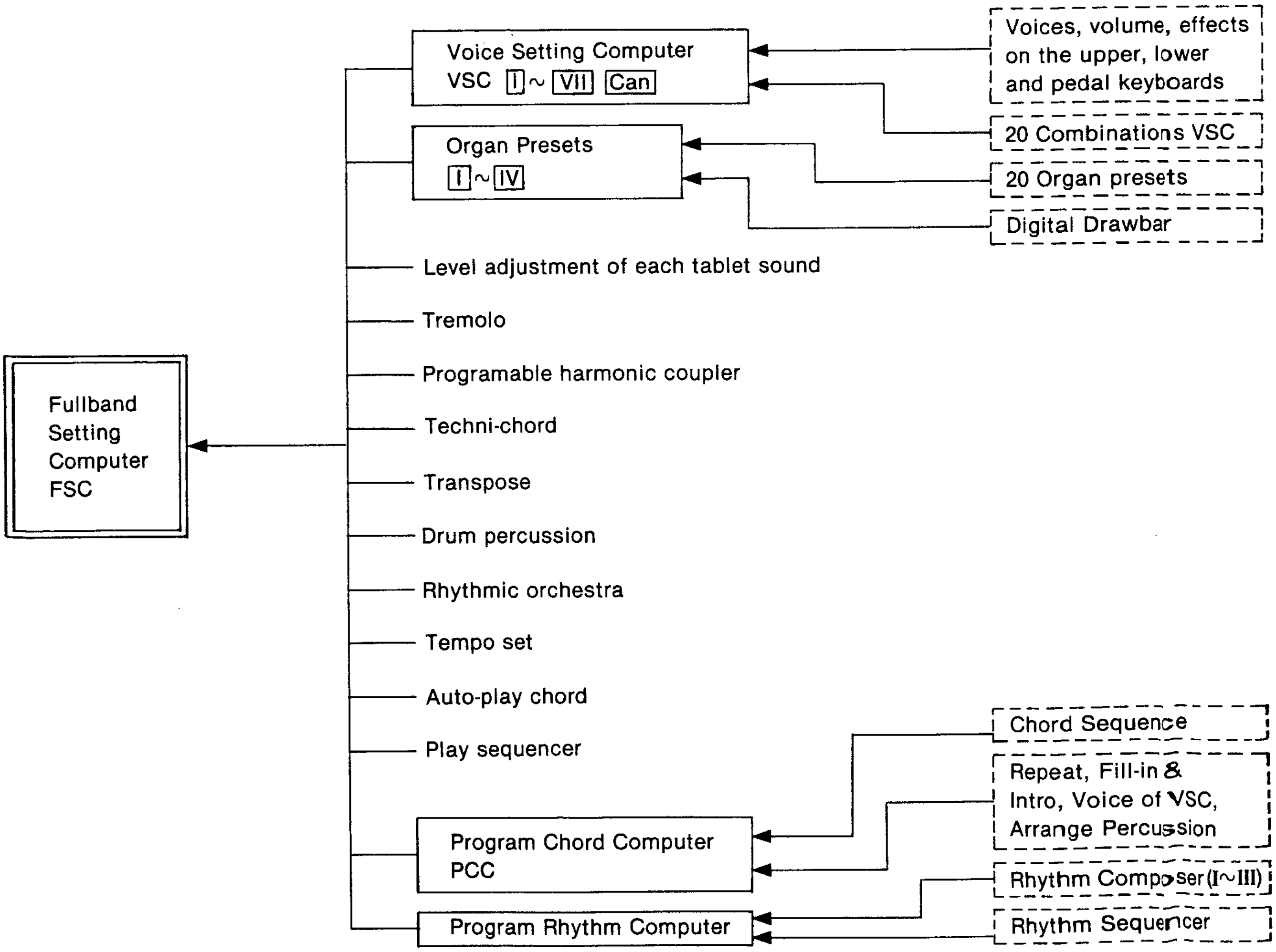




■ 20 Combinations VSC

1. Theater Organ 2. Church Organ 3. Pop Organ I 4. Pop Organ II 5. Rock Organ 6. Jazz Organ	Voice of organ family
7. Classical Strings 8. Symphonic Ensemble 9. Pop Ensemble I 10. Pop Ensemble II	Orchestral sound effects featuring strings
11. Soft Brass 12. Big Band Brass 13. Marching Brass	Voices of brass family
14. Synthe Brass 15. Fusion Guitar 16. New Wave 17. Funk Rock	Synthesizer and other electric sounds
18. Jazz Guitar Combo 19. Mix Combo 20. Modern Baroque	Orchestral sound effects without strings

■ Recording Functions

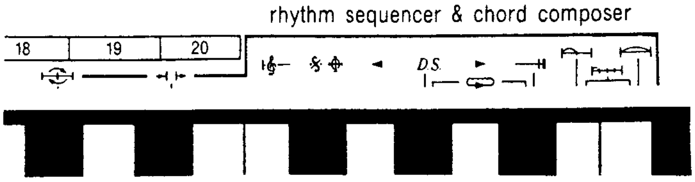

Voice Setting Computer
VSC I ~ VII Can
Organ Presets
I ~ IV
Voices, volume, effects on the upper, lower and pedal keyboards
20 Combinations VSC
20 Organ presets
Digital Drawbar
Level adjustment of each tablet sound
Tremolo
Programable harmonic coupler
Techni-chord
Transpose
Drum percussion
Rhythmic orchestra
Tempo set
Auto-play chord
Play sequencer
Fullband Setting Computer FSC
Chord Sequence
Repeat, Fill-in & Intro, Voice of VSC, Arrange Percussion
Rhythm Composer(I~III)
Rhythm Sequencer
Program Chord Computer PCC
Program Rhythm Computer

* Main Volume, tempo level and tuning can not be stored in FSC.

5. Rhythm Sequencer

A rhythm pattern, intro or fill-in may be stored for a necessary number of bars depending on the tune to be performed, and may be played automatically.

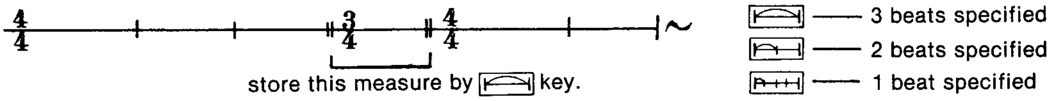
[Operation]



- Press the record button.
- Press rhythm sequencer button.
- Select a rhythm (or a composer).
- Specify the number of measured by using keys 1 to 20 in the lower keyboard.
  (When exceeding 20 measures, for example 32, divide into 20 + 12, and press keys 20 and 12.)
- When the measures are specified, press the key.
  * When the D.S. key and →‖ key are pressed simultaneously, the rhythm is repeated infinitely.

(1) Using ⊢⊣ key, ⊢⊣ key, and ⊢⊣ key, a length shorter than a measure (4 beats) can be specified

This function is useful when storing a tune having on intervening irregular meter.



(2) A repeat in a tune can be stored by using 𝄋⊕ key and D.S. key.

(the procedure of repeat memory operation is same as that of PCC.)

(3) Store the fill-in & intro in the sequencer.

- When storing an intro, start operation by pressing the fill-in & intro button.
- When storing a fill-in in the midst of a tune:
  Press the fill-in & intro button once, then the later half of the measure is stored as fill-in.
  When the fill-in & intro button is pressed twice, the whole measure is a fill-in.

(4) It is also possible to store arrangement percussions I, II, III, rhythmic orchestra, and drum percussion.

In the midst of procedure of specifying the rhythm sequencer/number of measures, press necessary buttons at necessary points and store the number of measures.

* If the rhythm pattern varies in the middle of the sequence, press the necessary rhythm pattern button during drum percussion at that point.

[Operation]

- Store 8 beat for four measures.
- Press fill-in & intro button once.
- Store 8 beat for four measures.
- Press fill-in & intro button second time. ... and so forth.

(5) Reverse key (⇄)

Usually when a rhythm pattern of two measures is stored in the sequencer, the rhythm pattern is performed from the odd-number measure.
When it is stored while pressing the reverse key, it is performed from the even-number measure.

* In addition to the kind of rhythm, the tempo set button, rhythmic orchestra and volume having been set at the same time are also stored.
(However, the tempo knob and fine button can not be stored.)

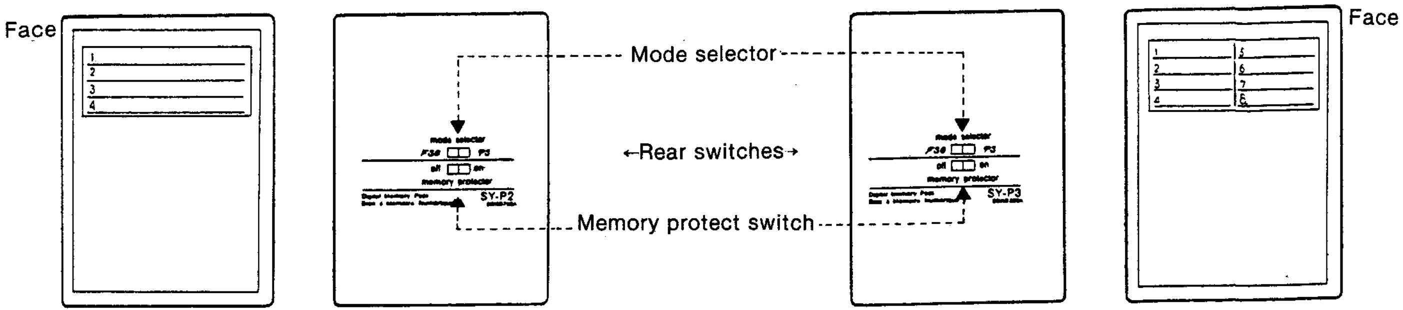
* When "→II→" key is pressed during memory operation, the rhythm stops once there during automatic performance. It is resumed when started by using start/stop button or other.

* In the case of two-measure pattern, when it is stored while pressing the " ⇄ " key, the preceding and succeeding measures are exchanged.

6. Digital Memory Pack

Furnished and Optinal Digital Memory Pack (SY-P2)

Optional Digital Memory Pack (SY-P3)


Face
1
2
3
4
Mode selector
mode selector
FSC
PS
off
on
memory protector
SY-P2
←Rear switches→
Memory protect switch
SY-P3
1
2
3
4
5
6
7
8
Face

(FSC memory capacity for 4 tunes)

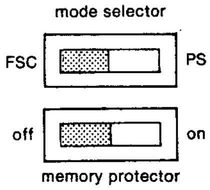
(FSC memory capacity for 8 tunes)

In the G7, F3, the memory content in the FSC can be preserved by using the Digital Memory Pack. By using Digital Memory Pack containing the repertory of performer, any number of Fegistrations can be set by a simple operation instantly, anywhere, anytime.

(1) Transfer the content in the FSC into the memory pack.

[Operation]

- Set the rear switches of the pack as follows.

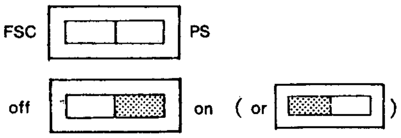

mode selector
FSC
PS
off
on
memory protector

- Open the slide door at the right side slot in the upper keyboard, and insert and set the memory pack.
- Set all registrations.
- Press record button, and push the FSC button while the indicator is lighting (within 5 seconds).
- Press one of keys [1] to [4] in the lower keyboard within 5 seconds after pressing the FSC button.
  - * For instance, when key [1] is pressed, the content of the FSC stored presently in the organ is transferred to address [1] of memory pack.
    In the optional memory pack, up to 8 tunes can be stored. In this case, use [1] to [8] in the lower keyboard.

(2) Playback the repertory stored in the memory pack.

[Operation]

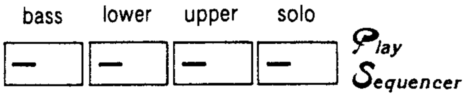
- Set the rear switches of the pack as follows, and insert into the organ main body.


FSC
PS
off
on
(or
)

  - * Turn on the switch in order to protect the content in the memory pack due to misoperation of the organ or other accident.
- Press the FSC button, and push one of keys [1] to [4] to start the rhythm.
  - * The No. of FSC being used (the key No.) is indicated in the musical display.

7. Play Sequencer

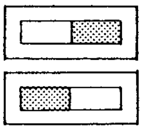
All the performance data including the melody, accompaniment and tone effect are preserved in the digital memory pack, and may be played back automatically when necessary.



The memory can be divided into four parts, that is, the upper keyboard, lower keyboard, solo synthesizer presets, and pedal keyboard. When playing back, it is possible to omit a specified part of the four, or to play with the organ simultaneously with the automatic performance.

[Operation]

- Set the rear switches of the digital memory pack as follows, and insert the pack into the organ.



- Set the registrations necessary for performance.

Solo synthe Upper keyboard Lower keyboard Pedal keyboard	Tone
Rhythm Tempo	Drum percussion

* Also prepare tones which are used during performance by replacing the others.

- Press record button.
- Press the lower keyboard button of play sequencer.
  - * The performance may be started from any part, but it will typically be started with the lower keybaord or pedal keyboard in a tune using a specific rhythm.
- Start the rhythm, and play the part of the lower keyboard only.
  - * Where rhythm is not used, play without rhythm. Or start the rhythm at any point in the midst of a tune.
- When the performance of the lower keyboard is over, press the pedal keyboard button of play sequencer.
  - * At this time, when the rhythm is started with the lower keyboard button kept in ON position, the freshly stored lower keyboard sound is automatically played.
- Start the rhythm, and play the part of the pedal keyboard only.
- When the performance of the pedal keyboard is over, press the upper keyboard button of play sequencer.
- Start the rhythm, and play the part of the upper keyboard only.
- When the performance of the upper keyboard is over, press the solo synthesizer preset button of play sequncer, and play similarly the part of the Solo Synthe only.
- When the performance of all parts is over, press the record button again to turn it off.
  - * Two or more parts can be stored simultaneously. Play by pressing the buttons of the necessary parts of the play sequencer.
  - * Since the rhythm tempo can be varied by sliding the tempo lever during automatic performance, it may be possible to set the tempo lower than desised during performance, then adjust when playing back.
  - * In the memory operation of the bass sound, it is also possible to play with the lower keyboard by using the bass solo.

> In the memory operation of the upper keyboard, all the performance data such as changing of the tone effect in the midst of a tune can be preserved. Therefore, when changing over the tone effect of the lower keyboard or pedal keyboard or Solo Synthe during performance, store the changeover operation at necessary timing in the memory operation of the upper keyboard.

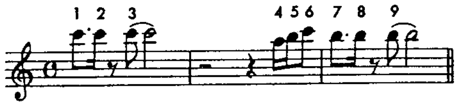
■ Capacity of memory

	4-tune memory pack		8-tune memory pack	
Upper keyboard	200 notes	(400 notes)	500 notes	(1000 notes)
Lower keyboard	200 notes		500 notes	
Solor Synthe presets	150 notes	(300 notes)	350 notes	(700 notes)
Pedal keyboard	150 notes		350 notes	

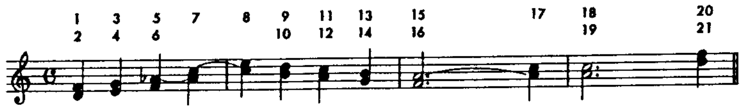
When storing only one of upper keyboard and lower keyboard, or of Solo Synthe and pedal keyboard, the memory capacity is doubled respectively, which is shown in the parentheses in the table.

* How to count the number of notes.
The lenght from pressing on a key till its releasing is counted as a note.

Example



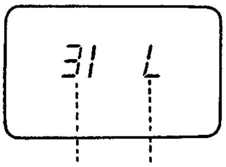
(9 notes)



(21 notes)

* In the memory operation of each part, the number of remaining notes is indicated in the Musical Display.

- When storing two or more parts simultaneously, only the part with the least number of remaining notes is indicated.
- When exceeding the capacity, the error mark "E" appears.



31 notes remaining Lower keyboard

(Abbreviation)

Upper keyboard——U
Lower keyboard——L
Solo Synthe presets——S
Pedal keyboard——B

NOTE: Control panel operation means various operations to be stored simultaneously during the memory operation of the upper keyboard: for instance, tone changeover and fill-in.

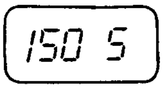
■ How to double the memory capacity of play sequencer

(1) To double the memory capacity of Solo Synthe sound.

[Operation]

- Press record button.
- Press the Solo Synthe button of the play sequencer.

* At this time, the memory capacity of the Solo Synthe sound is indicated in the Musical Display.



- Press the FSC button, and push key 2 in the lower keyboard.

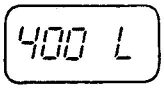
- Press the FSC button again to turn it off.

* As a result, the memory capacity of Solo Synthe sound is two-folded. Therefore, the bass sound cannot be stored.

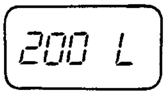
(2) To return the memory capacity of lower keyboard to initial state.

[Operation]

- Press record button.
- Press the lower keyboard button of play sequencer.



- * If the musical display is showing as indicated above, the sound of the upper keyboard cannot be stored.
- Press the FSC button, and push key 1 in the lower keyboard.



- Press the FSC button again to turn it off.
  - * As a result, the memory capacity of the lower keyboard returns to the initial state. Therefore, the sound of the upper keyboard may be also stored.

(3) When changing the registration immediately before the memory operation after pressing record button and pushing the button of the necessary part of the play sequencer, press the FSC button and correct the registration, and press the FSC button again to turn it off, then start memory operation.

[Operation]

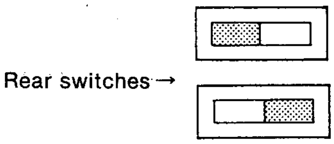
- Press record button.
- Press, for example, upper keyboard button of play sequencer.
  In this state, the registration is already stored.
- Press the FSC button. This results in a pause of memory function of registration (the function of the play sequencer is temporarily suspended).
- Change the registration.
- Press the FSC button again to turn it off. As a result, a new registration is stored.

■ Playback operation

(1) In the case of FSC

[Operation]

- Insert the digital memory pack into the organ.

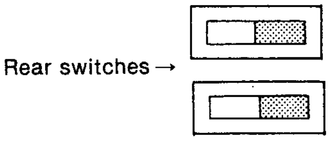


- * When using a floppy disk, do not use memory pack, and connect a digital disk recorder, and set a disk.
- Press the FSC button, and press one of keys $\boxed{1}$ to $\boxed{4}$ in the lower keyboard within five seconds.
  - * When using an optional memory pack, select from keys $\boxed{1}$ to $\boxed{8}$.
- Start the rhythm.

(2) In the case of play sequencer

[Operation]

- Insert the digital memory pack into the organ.



- * When using a floppy disk, do not use memory pack, and connect a digital disk recorder, and set a disk.
- Among the play sequencer buttons of the organ, press the button of the part to play back and perform automatically. When the buttons of all four parts are pressed, the stored performance is completely reproduced.

- Start the rhythm. At this time, the tempo can be freely adjusted.
  - * When playing back a tune not using rhythm, start the rhythm with the on/off button of the drum percussion kept in off position.
  - * During playback by the play sequencer, the upper and lower keyboards can be performed simultaneously with the automatic performance. It is also possible to play the organ to vary the tone effect or rhythm of the automatic performance reproduced by the play sequencer.
    (At this time, the memory content is not changed. Therefore, when performing again with the play sequencer, the registration at the time of storing is effected.)
    The bass sound or solo sound can not be performed like the sequencer when the sequencer button is turned on.
  - * When playing the bass sound in tune with the automatic performance, turn off the bass button of the play sequencer and play back, so that free performance may be achieved.

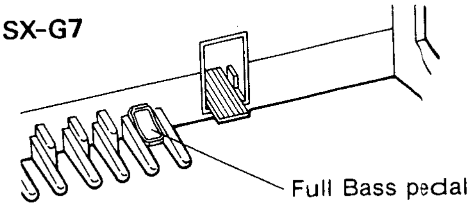
8. Full Bass Pedal

The full bass pedal system is intended to select the sound of the lowest pitch automatically always while the lower keyboard is being played, and emit the bass sound corresponding to that sound only when the full bass pedal is pressed. However, the sound of the same tone, volume and effect will be obtained by pressing the button for pedal keyboard.

* The sound becomes 16′ with respect to the lower keyboard. Therefore, bass 8′ is equal in pitch to bass 16′.

* When the pedal keyboard and full bass pedal are depressed simultaneously, the priority is given to the full bass pedal.

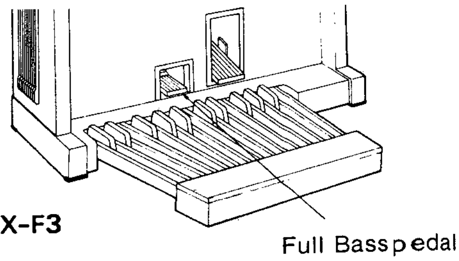
SX-G7



■ Bass Solo

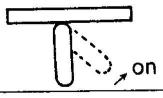
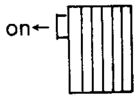
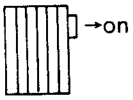
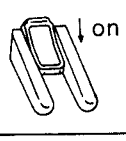
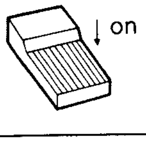
When the full bass pedal is pressed with the bass solo button turned on, the sound of the lower keyboard is swept away, and only the bass sound remains on. When the lower keyboard is played while depressing the full bass pedal, a bass solo may be played easily.

* When used in combination with program chord computer, the bass sound of the program chord may be converted to an independent bass accompaniment, so that an effective performance may be achieved.

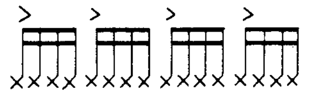
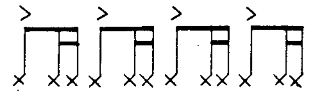
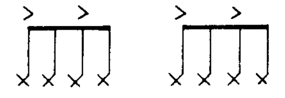
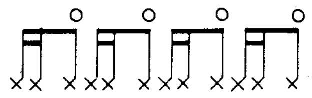
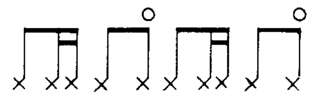
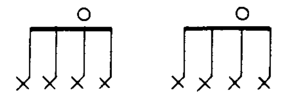
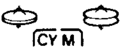
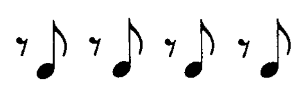
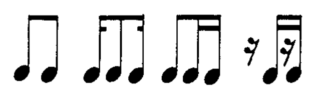
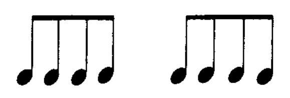
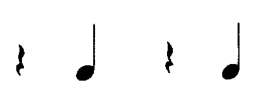
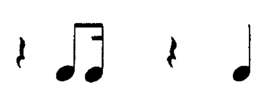
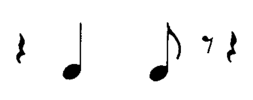
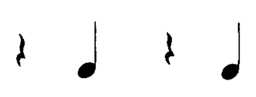
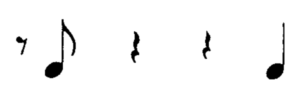
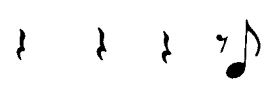
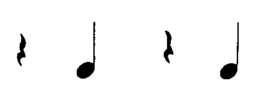
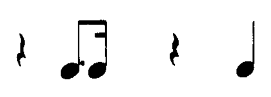
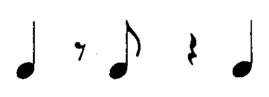
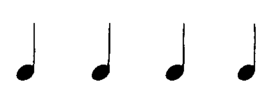
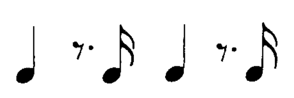
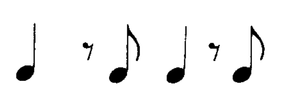
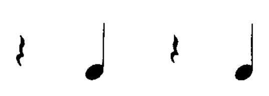
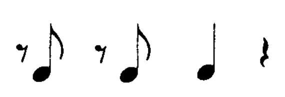
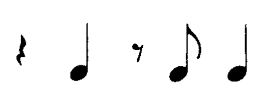
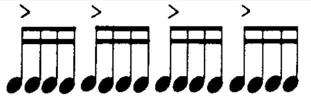
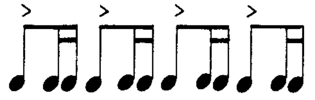
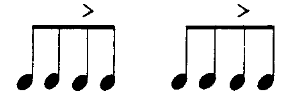
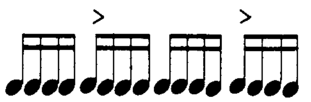
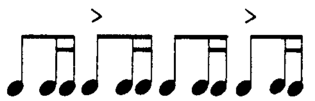
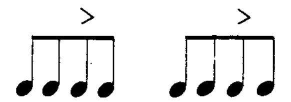
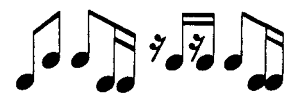
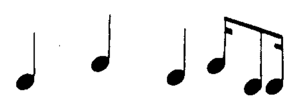
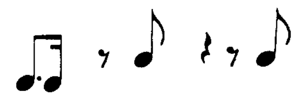
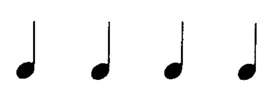
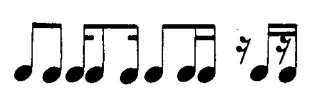
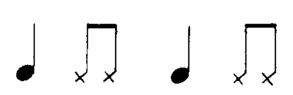
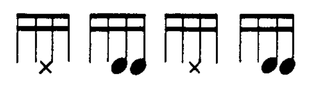
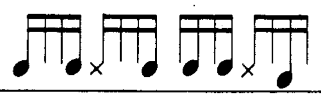
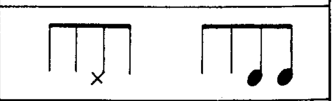
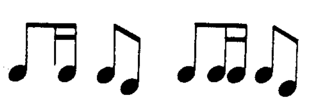
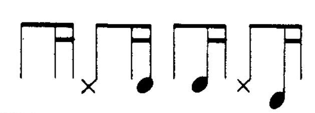
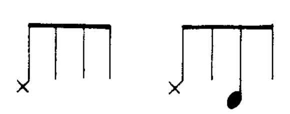


SX-F3

■ Buttons of the following functions can be stored in each function switch

Function switch	Original function	Buttons of the function to be stored
Knee lever 	Sustain on/off	Voice setting computer (I to VII) Multi-tremolo slow/fast Techni-chord Fill-in & intro (I, II, solo)
Left foot switch (when glide /rhythm button is on) 	Start/stop of drum percussion	Voice setting computer (I to VII) Multi-tremolo slow/fast Techni-chord Drum percussion start/stop Fill-in & intro (I, II, solo)
Right foot switch 	On of fill-in	
Full bass pedal (When bass solo button is on  	Bass solo	Program chord computer (PCC) Fingered, Memory, Play sequencer (solo, upper keyboard, Lower keyboard, pedal keyboard)

Rhythm Patterns

Preset keys →	I	II	III
Closed hi-hat CY			
Open hi-hat M			
Cymbals  CY M			
Snare drum R			
Tom-tom S			
Rim-shot RS			
Bass drum			
Hand clap			
Shaker			
Tambourine			
Agogo bell			
Cowbell			
Conga			
Bongo			

REGISTRATION FOR 20 COMBINATION VSC

20 combination VSC

Combination of original tones and effects are preset in this unit. You can select the desired tones by the lower keyboard keys marked with 1~20, and store them by use of buttons I, II, III, IV, V, VI and VII of the voice setting computer.

The tones mentioned below are preset in the keyboard (1—20). The combinations of the selected tones and effects are displayed by LED's on the control panel. The ▭ marked tones and effects are not displayed on the control panel.

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect	Remarks
1	**Theater Organ**	Upper: upper tab voices Lower: lower tab voices	• tab voices: flute 16′, 8′, 4′, 2′, 1′ • upper volume: step 3	• tab voices: flute 8′, 4′, 2′ • lower volume: step 3	• bass tones: bass 16′, 8′ • harmonic control: center • bass volume: step 3	• multi-tremolo: U. tab voices (fast) L. tab voices • sustain: U. tab...step 2 bass ...step 3 • reverb: step 3	
2	**Church Organ**	Upper: upper tab voices Lower: lower tab voices	• tab voices: flute 16′, 8′, 4′, $2^{2}/_{3}'$, 2′, $1^{1}/_{3}'$, 1′ string 8′ • slow attack: flute 16′, 8′, string 8′ • upper volume: step 3	• tab voices: flute 8′, 4′, 2′, 1′ $\boxed{\text{slow attack}}$ • lower volume: step 3	• bass tones: pipe bass I • harmonic control: center • bass volume: step 3	• multi-tremolo: U. tab voices (slow) L. tab voices • celeste: U. tab voices • chorus: L. tab voices • sustain: bass...step 3 • reverb: step 4	* When the slow attack button of upper tab voice is turned OFF, tones other than flute 16′, 8′ and $5^{1}/_{3}'$ are shifted to "decay" mode.
3	**Pop Organ I**	Upper: upper tab voices Lower: lower tab voices	• tab voices: flute 16′, $2^{2}/_{3}'$ • volume: step 3 • percussive tone: $2^{2}/_{3}'$ • volume: step 3	• tab voices: flute 8′, 4′ • lower volume: step 3	• bass tones: bass 16′, 8′ • harmonic control: center • bass volume: step 3	• multi-tremolo: U. tab voices (slow) • celeste: L. tab voices • sustain: bass...step 3 • reverb: step 3	
4	**Pop Organ II**	Upper: upper tab voices Lower: lower tab voices	• tab voices: flute 16′, 4′ $\boxed{\text{decay...4}'}$ • volume: step 3 • percussive tone: 4′ • volume: step 3	• tab voices: flute 8′, 4′ • lower volume: step 3	• bass tone: bass 16′, 8′ • harmonic control: center • bass volume: step 3	• multi-tremolo: U. tab voices (slow) L. tab voices • sustain: U. tab (flute 4′)...step 2 bass ....step 3 • reverb: step 3	
5	**Rock Organ**	Upper: upper tab voices Lower: percussive presets	• tab voices: flute 16′, 8′, $5^{1}/_{3}$, 4′, $2^{2}/_{3}'$, 2′, $1^{1}/_{3}'$, 1′ • harmonic coupler: $2^{2}/_{3}'$ • volume: step 3 • percussive tone: $5^{1}/_{3}'$, 4′, $2^{2}/_{3}'$ • volume: step 3	• percussive presets: electric piano • harmonic control: center • volume: step 3	• bass tone: electric bass • harmonic control: center • bass volume: step 3	• multi-tremolo: U. tab voices (slow) • celeste: U. tab voices • sustain: bass...step 3 • reverb: step 3	
6	**Jazz Organ**	Upper: upper tab voices Lower: percussive presets	• tab voices: flute 16, 8′, $5^{1}/_{3}'$ • volume: step 3 • percussive tone: $5^{1}/_{3}'$, $2^{2}/_{3}'$, click • volume: step 3	• percussive presets: jazz guitar • harmonic control: center • volume: step 2	• bass tone: acoustic bass • harmonic control: center • bass volume: step 3	• multi-tremolo: U. tab voices (slow) • sustain: bass...step 3 • reverb: step 3	
7	**Classical Strings**	Upper: upper tab voices string ensemble Lower: lower tab voices string ensemble	• tab voices: string 8′, 4′ • slow attack • volume: step 4 • string ensemble: violin • volume: step 3	• tab voices: flute 8′, string 8′, 4′ $\boxed{\text{slow attack}}$ • volume: step 3 • string ensemble: cello • volume: step 3	• bass tone: ensemble bass • harmonic control: center • bass volume: step 3	• vibrato: U. tab voices L. tab voices • celeste: U. tab voices L. tab voices • sustain: U. tab...step 3 bass ...step 3 • reverb: step 4	

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect	Remarks
8	**Symphonic Ensemble**	Upper: upper tab voices string ensemble solo synthe presets Lower: lower tab voices percussive presets string ensemble	• tab voices: flute 16′, 8′, 4′, 2′, 1′ string 4′ • volume: step 4 • string ensemble: violin • volume: step 4 • solo synthe presets: oboe • harmonic control: bright • volume: step 4	• tab voices: flute 8′, 4′, 2′, 1′ string 8′, 4′ • volume: step 4 • percussive presets: harpsichord • harmonic control: bright • volume: step 3 • string ensemble: cello • volume: step 3	• bass tone: ensemble bass • harmonic control: mellow • bass volume: step 4	• multi-tremolo: U. tab voices (slow) L. tab voices • celeste: U. tab voices L. tab voices L. percussive presets • sustain: U. tab...step 3 L. percussive presets...step 3 bass ...step 3 • reverb: step 4	
9	**Pop Ensemble I**	Upper: upper tab voices percussive presets Lower: lower tab voices	• tab voices: flute 8′, 1′ • slow attack • volume: step 3 • percussive presets: electric piano • harmonic control: center • volume: step 4	• tab voices: flute 8′, 4′ • volume: step 3	• bass tone: electric bass • harmonic control: mellow • bass volume: step 3	• multi-tremolo: U. tab voices (slow) • celeste: U. percussive presets L. tab voices • sustain: U. tab...step 3 bass ...step 3 • reverb: step 3	
10	**Pop Ensemble II**	Upper: string ensemble solo synthe presets Lower: string ensemble percussive presets	• string ensemble: violin • volume: step 3 • solo synthe presets: pan flute • harmonic control: center • volume: step 3	• string ensemble: cello • volume: step 3 • percussive presets: harpsichord • harmonic control: center • volume: step 3	• bass tone: acoustic bass • harmonic control: center • bass volume: step 3	• sustain: bass...step 3 • reverb: step 3	
11	**Soft Brass**	Upper: orchestral presets solo synthe presets Lower: percussive presets	• orchestral presets: trombone • harmonic control: mellow • volume: step 3 • solo synthe presets: trumpet • harmonic control: mellow • volume: step 3	• percussive presets: jazz guitar • harmonic control: center • volume: step 3	• bass tone: acoustic bass • harmonic control: center • bass volume: step 3	• celeste: U. orchestral presets U. solo synthe presets • chorus: L. percussive presets • sustain: bass...step 3 • reverb: step 3	
12	**Big Band Brass**	Upper: orchestral presets solo synthe presets Lower: percussive presets	• orchestral presets: saxophone • harmonic control: bright • volume: step 4 • solo synthe presets: saxophone • harmonic control: bright • volume: step 4	• percussive presets: acoustic piano • harmonic control: bright • volume: step 3	• bass tone: electric bass • harmonic control: center • bass volume: step 3	• celeste: U. orchestral presets • sustain: bass...step 3 • reverb: step 2	
13	**Marching Brass**	Upper: orchestral presets solo synthe presets Lower: lower tab voices percussive presets	• orchestral presets: trombone • harmonic control: bright • volume: step 4 • solo synthe presets: trombone • harmonic control: bright • volume: step 4	• tab voices: flute 8′, 4′, 2′ • volume: step 3 • percussive presets: banjo • harmonic control: bright • volume: step 3	• bass tone: tuba • harmonic control: center • bass volume: step 3	• celeste: U. orchestral presets L. tab voices • muti-tremolo: L. tab voices (slow) • sustain: bass...step 2 • reverb: step 2	
14	**Synthe Brass**	Upper: orchestral presets solo synthe presets Lower: percussive presets	• orchestral presets: wah brass • harmonic control: center • volume: step 4 • solo synthe presets: saxophone key bender • harmonic control: center • volume: step 2	• percussive presets: clavi • harmonic control: center • volume: step 3	• bass tone: chopper bass • harmonic control: center • bass volume: step 3	• celeste: U. orchestral presets • phaser: L. percussive presets • chorus: U. solo synthe presets • sustain: bass...step 3 • reverb: step 3	
15	**Fusion Guitar**	Upper: orchestral presets solo synthe presets Lower: percussive presets	• orchestral presets: clarinet • harmonic control: center • volume: step 2 • solo synthe presets: rock guitar key bender • harmonic control: center • volume: step 4	• percussive presets: electric piano • harmonic control: center • volume: step 3	• bass tone: chopper bass • harmonic control: center • bass volume: step 3	• chorus: U. solo synthe presets • phaser: U. orchestsral presets • celeste: L. percussive presets • sustain: bass...step 3 • reverb: step 2	

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect	Remarks
16	**New Wave**	Upper: orchestral presets solo synthe presets Lower: percussive presets	• orchestral presets: trumpet • harmonic control: bright • volume: step 3 • solo synthe presets: cosmic • harmonic control: center • volume: step 3	• percussive presets: electric piano • harmonic control: bright • volume: step 3	• bass tone: chopper bass • harmonic control: center • bass volume: step 3	• celeste: U. orchestral presets • phaser: U. solo synthe presets L. percussive presets • sustain: bass...step 3 • reverb: step 2	
17	**Funk Rock**	Upper: orchestral presets solo synthe presets Lower: lower tab voices percussive presets	• orchestral presets: synthe brass • harmonic control: mellow • volume: step 4 • solo synthe presets: synthe chopper key bender • harmonic control: bright • volume: step 4	• tab voices: flute 8′, 1′, string 8′ • volume: step 3 • percussive presets: clavi • harmonic control: bright • volume: step 3	• bass tone: chopper bass • harmonic control: center • bass volume: step 3	• multi-tremolo: L. tab voices (slow) • chorus: U. orchestral presets • phaser: U. solo synthe presets L. tab voices L. percussive presets • sustain: bass...step 3 • reverb: step 2	
18	**Jazz Guitar Combo**	Upper: percussive presets solo synthe presets Lower: lower tab voices orchestral presets string ensemble	• percussive presets: jazz guitar • harmonic control: bright • volume: step 4 • solo synthe presets: flute • harmonic control: mellow • volume: step 4	• tab voices: flute 8′, 4′ • volume: step 3 • orchestral presets: saxophone • harmonic control: mellow • volume: step 2 • string ensemble: cello • volume: step 2	• bass tone: acoustic bass • harmonic control: center • bass volume: step 3	• multi-tremolo: L. tab voices (slow) • chorus: U. percussive presets L. orchestral presets • celeste: L. tab voices • sustain: bass...step 3 • reverb: step 3	
19	**Mix Combo**	Upper: percussive presets solo synthe presets Lower: lower tab voices orchestral presets	• percussive presets: acoustic piano • harmonic control: bright • volume: step 3 • solo synthe presets: clarinet • harmonic control: mellow • volume: step 4	• tab voices: flute 8′, 4′, 2′ • volume: step 3 • orchestral presets: trombone • harmonic control: mellow • volume: step 3	• bass tone: electric bass • harmonic control: center • bass volume: step 3	• multi-tremolo: L. tab voices (slow) • chorus: U. percussive presets • celeste: L. tab voices L. orchestral presets • sustain: bass...step 3 • reverb: step 2	
20	**Modern Baroque**	Upper: upper tab voices solo synthe presets string ensemble Lower: lower tab voices percussive presets	• tab voices: flute 16′, 8′, 4′, 2′, 1′ • volume: step 4 • solo synthe presets: trumpet • harmonic control: bright • volume: step 3 • string ensemble: cello • volume: step 2	• tab voices: flute 8′, 4′, 2′ • volume: step 3 • percussive presets: harpsichord • harmonic control: bright • volume: step 3	• bass tone: ensemble bass • harmonic control: mellow • bass volume: step 3	• multi-tremolo: U. tab voices (slow) L. tab voices • celeste: U. tab voices L. tab voices • phaser: L. percussive presets • sustain: bass...step 3 • reverb: step 2	

REGISTRATION FOR 20 ORGAN PRESETS

Organ notes of 20 kinds are preset in keys 1—20 of the lower keyboard. The combinations of 20 organ presets are shown in the table below.

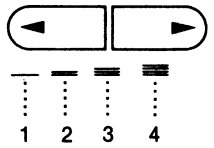
∗ Some of the combinations contain tones or effects not obtainable with tablets.

<table>
<tr><th colspan="2" rowspan="2">Organ Presets</th><th colspan="10">Flute Level</th><th colspan="2">String</th><th rowspan="2">Slow Attack</th><th rowspan="2">Upper Volume</th><th rowspan="2">Harmonic Coupler</th><th colspan="6">Percussive Tone</th></tr>
<tr><th>16'</th><th>10 2/3'</th><th>8'</th><th>5 1/3'</th><th>4'</th><th>2 2/3'</th><th>2'</th><th>1 1/3'</th><th>1'</th><th>2/3'</th><th>8'</th><th>4'</th><th>5 1/3'</th><th>4'</th><th>2 2/3'</th><th>2'</th><th>click</th><th>volume</th></tr>
<tr><td rowspan="5">Pop Organ</td><td>1</td><td>5</td><td></td><td>7</td><td></td><td>6</td><td></td><td>5</td><td></td><td>4</td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>5</td><td></td><td>7</td><td>7</td><td></td><td>7</td><td></td><td>2</td><td>1</td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>5</td><td></td><td>7</td><td></td><td></td><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td></td><td></td><td>7</td><td></td><td>7</td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td>○</td><td></td><td></td><td>3</td></tr>
<tr><td>5</td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td>○ long</td><td></td><td></td><td></td><td>4</td></tr>
<tr><td rowspan="5">Jazz Rock Organ</td><td>6</td><td>7</td><td></td><td>7</td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3</td><td></td><td>○</td><td></td><td>○</td><td></td><td>○</td><td>3</td></tr>
<tr><td>7</td><td>7</td><td></td><td>7</td><td>7</td><td>3</td><td>2</td><td>1</td><td>1</td><td>1</td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td>○</td><td></td><td>○</td><td>3</td></tr>
<tr><td>8</td><td>7</td><td></td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td>○</td><td></td><td>○</td><td>3</td></tr>
<tr><td>9</td><td>7</td><td></td><td>7</td><td>7</td><td></td><td></td><td></td><td>7</td><td>7</td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td>○</td><td>3</td></tr>
<tr><td>10</td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td>7</td><td>7</td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td>○</td><td>3</td></tr>
<tr><td rowspan="10">Classical Organ</td><td rowspan="2">11</td><td colspan="4">slow attack</td><td rowspan="2">7</td><td rowspan="2">4</td><td rowspan="2">7</td><td rowspan="2">3</td><td rowspan="2">7</td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">○ (16', 8')</td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>7</td><td></td><td>7</td><td></td></tr>
<tr><td rowspan="2">12</td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">○</td><td rowspan="2"></td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr></tr>
<tr><td rowspan="2">13</td><td colspan="4"></td><td colspan="8">slow attack</td><td rowspan="2">○</td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td>7</td><td>7</td><td></td><td></td><td>○</td></tr>
<tr><td rowspan="2">14</td><td colspan="4">slow attack</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">○ (8')</td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td></td><td></td><td>7</td><td></td></tr>
<tr><td rowspan="2">15</td><td colspan="4">slow attack</td><td rowspan="2"></td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">○ (8')</td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td></td><td></td><td>7</td><td></td></tr>
<tr><td rowspan="2"></td><td rowspan="2">16</td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td colspan="8">decay</td><td rowspan="2"></td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">○</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">3</td></tr>
<tr><td></td><td>7</td><td></td><td></td><td>7</td><td></td><td></td><td></td></tr>
<tr><td rowspan="6">Special Organ</td><td rowspan="2">17</td><td rowspan="2">7</td><td rowspan="2">7</td><td colspan="2" rowspan="2">slow attack</td><td>decay</td><td rowspan="2"></td><td>decay</td><td rowspan="2"></td><td>decay</td><td rowspan="2"></td><td colspan="2">decay</td><td rowspan="2"></td><td rowspan="2">3</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td>1 3/5'</td><td>1 1/3'</td><td rowspan="2"></td><td rowspan="2">3</td></tr>
<tr><td></td><td>7</td><td>7</td><td></td><td></td><td>○</td><td>○</td></tr>
<tr><td rowspan="2">18</td><td rowspan="2">7</td><td rowspan="2"></td><td rowspan="2">7</td><td rowspan="2">7</td><td>decay</td><td rowspan="2"></td><td>decay</td><td rowspan="2"></td><td>decay</td><td rowspan="2"></td><td colspan="2">decay</td><td rowspan="2"></td><td rowspan="2">3</td><td rowspan="2">program</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">○</td><td rowspan="2"></td><td rowspan="2">○</td><td rowspan="2">3</td></tr>
<tr><td></td><td></td><td>7</td><td></td><td>○</td></tr>
<tr><td>19</td><td>7</td><td></td><td></td><td></td><td>7</td><td></td><td></td><td></td><td>7</td><td></td><td></td><td></td><td></td><td>3</td><td>program</td><td></td><td></td><td></td><td>○</td><td></td><td>3</td></tr>
<tr><td>20</td><td>7</td><td></td><td></td><td></td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td>○</td><td></td><td>3</td><td>program</td><td>○</td><td></td><td></td><td></td><td></td><td>3</td></tr>
</table>

• Flute footage level display (……flashes)

level	0 (off)	1	2	3	4	5	6	7 (max)
display		—	— —	— — —	— — — ----	— — — —	— — — — ------	— — — — —

• Volume level



INTRODUCTORY REMARKS REGARDING SCHEMATIC DIAGRAMS

1. Important safety notice:

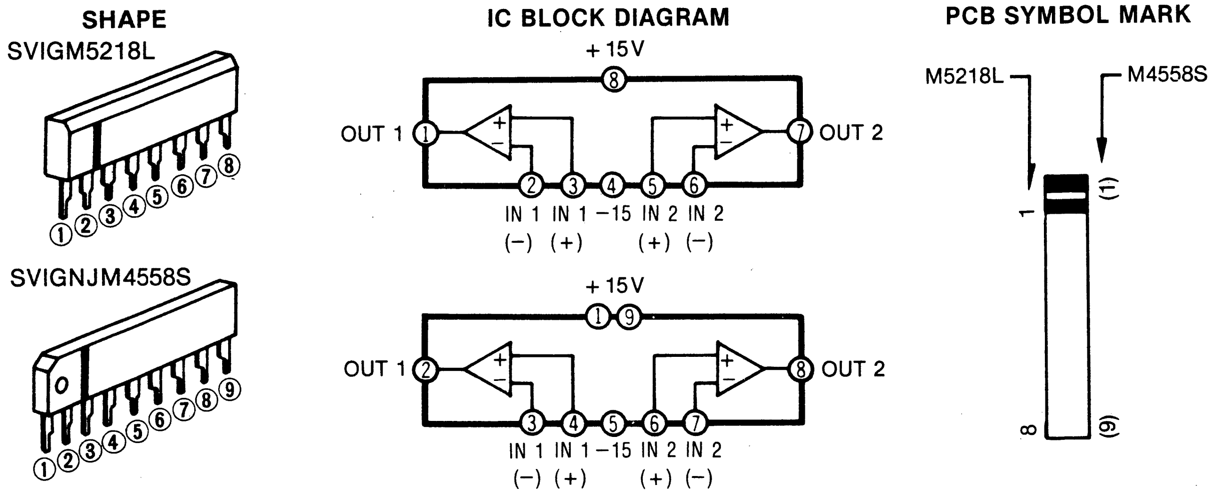
Components identified by ⚠ mark have special characteristics for safety.
When replacing any of these components, use only manufacturer's specified parts.

2. Measuring of output waveforms

1. The waveform was measured by "National Digital Strage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of measure.
2. The voltage shown in the photo is 1/10 of the actual value. However, the actual voltage is 10 times of as shown in this photo.

3. Terminal No. of operational amplifier

In this model, operational amplifiers with different number of terminals as shown below are used together.
Those mentioned in the circuit diagram are based upon the terminal No. of SVIGM5218L. Therefore, when checking a P.C.B. using SVIGNJM4558S, note that the terminal No. are different from those in the circuit diagram.



4. Symbolic marks

The smbolic marks for resistors and capacitors, which are used in the circuits for this organ, are as follows.

■ Resistors

(1) Resistors without symbolic mark are FIXD CARBON FILM RESISTORS.
(2) All resistors are 1/4 WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagram.
(3) Resistors with 🄵 symbolic mark are Flame-Proof resistors.
(4) Resistors with Ⓕ symbolic mark are fuse type Flame-Proof resistors.
(5) All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ.

■ Capacitors

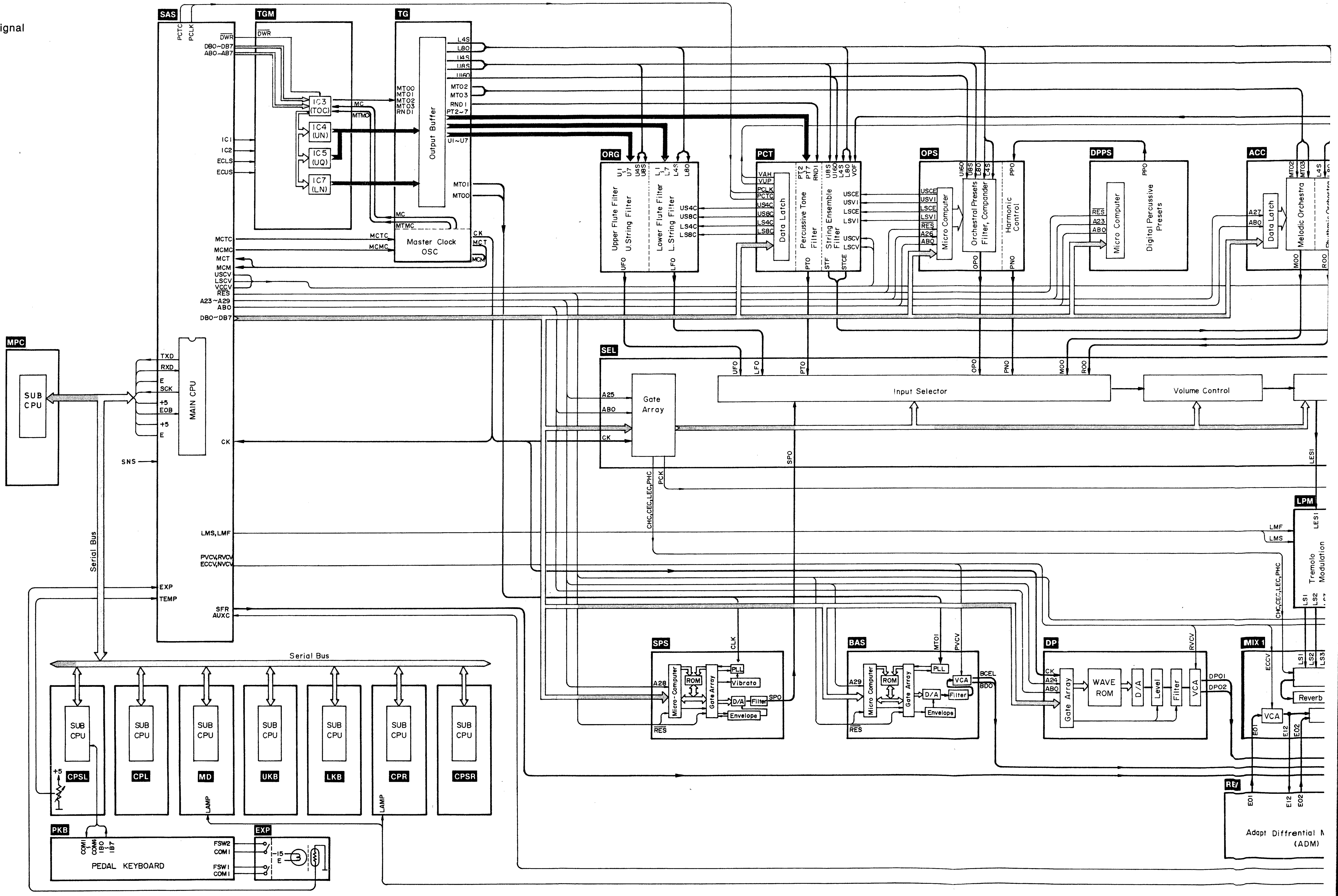
(1) Capacitors without symbolic mark are Polyester Film Capacitors (ECQM—type).
(2) Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type).
(3) Others
- (TF) : TF capacitor (ECQV—type).
- Ⓩ : Aluminum Electrolytic Capacitor, Ⓩ series Low impedance type (ECEA—Z—type).
- (MS) : Aluminum Electrolytic Capacitor, (MS) series Low leakage current type (ECEA—M—type).
- Ⓚ : Aluminum Electrolytic Capacitor for miniature type (ECEA—K—type).
- Ⓣ : Tantalume Solid Electrolytic Capacitor (ECSF—type).
- Ⓝ, Ⓨ: Bi-Polarized Electrolytic Capacitor (ECEA—N—type), (ECEA—Y—type).
- ○ : Ceramic Capacitor (ECC—type), (ECK—type).

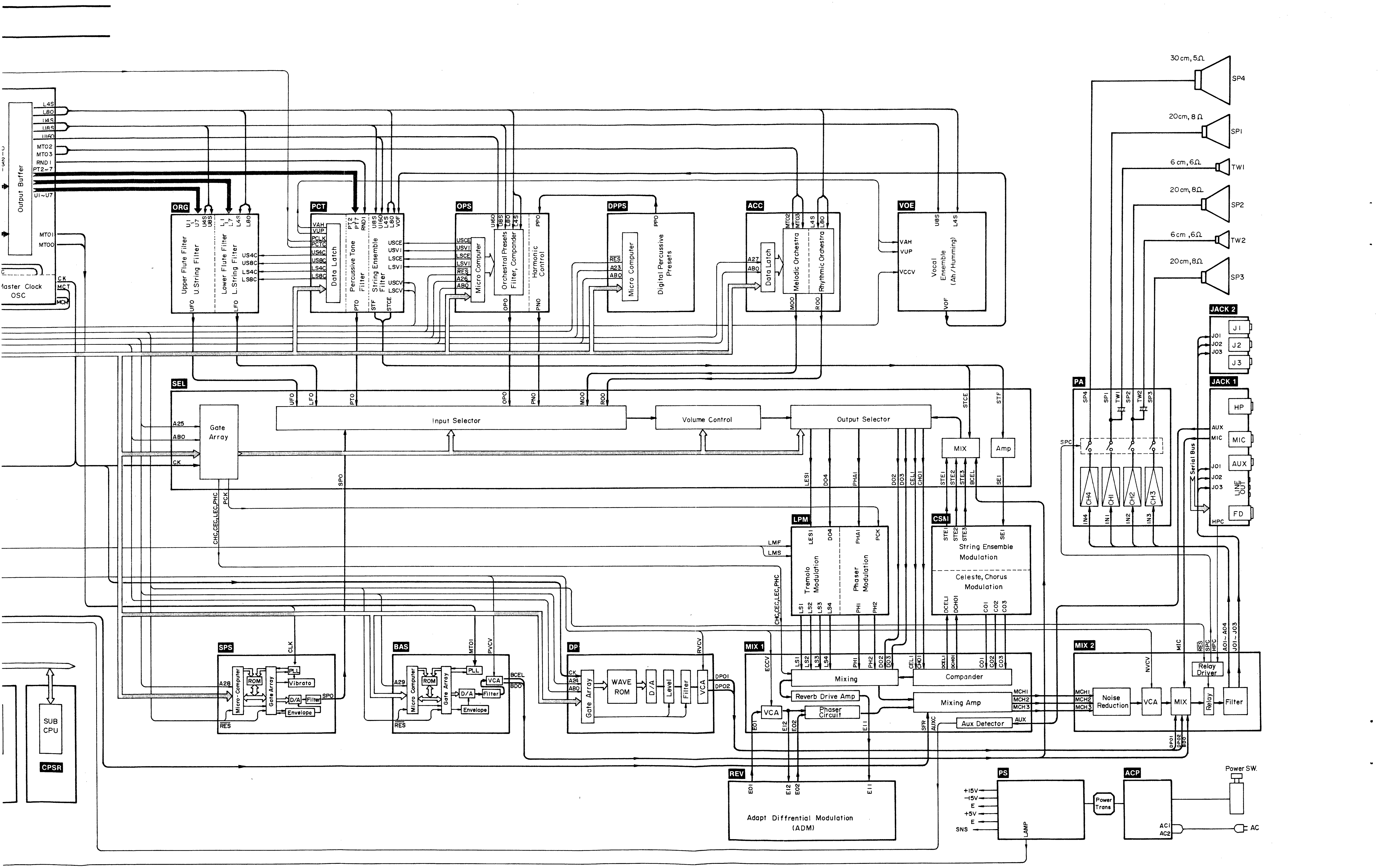
(4) All capacitors are microfarads unless otherwise specified in the schematic diagram.

BLOCK DIAGRAM

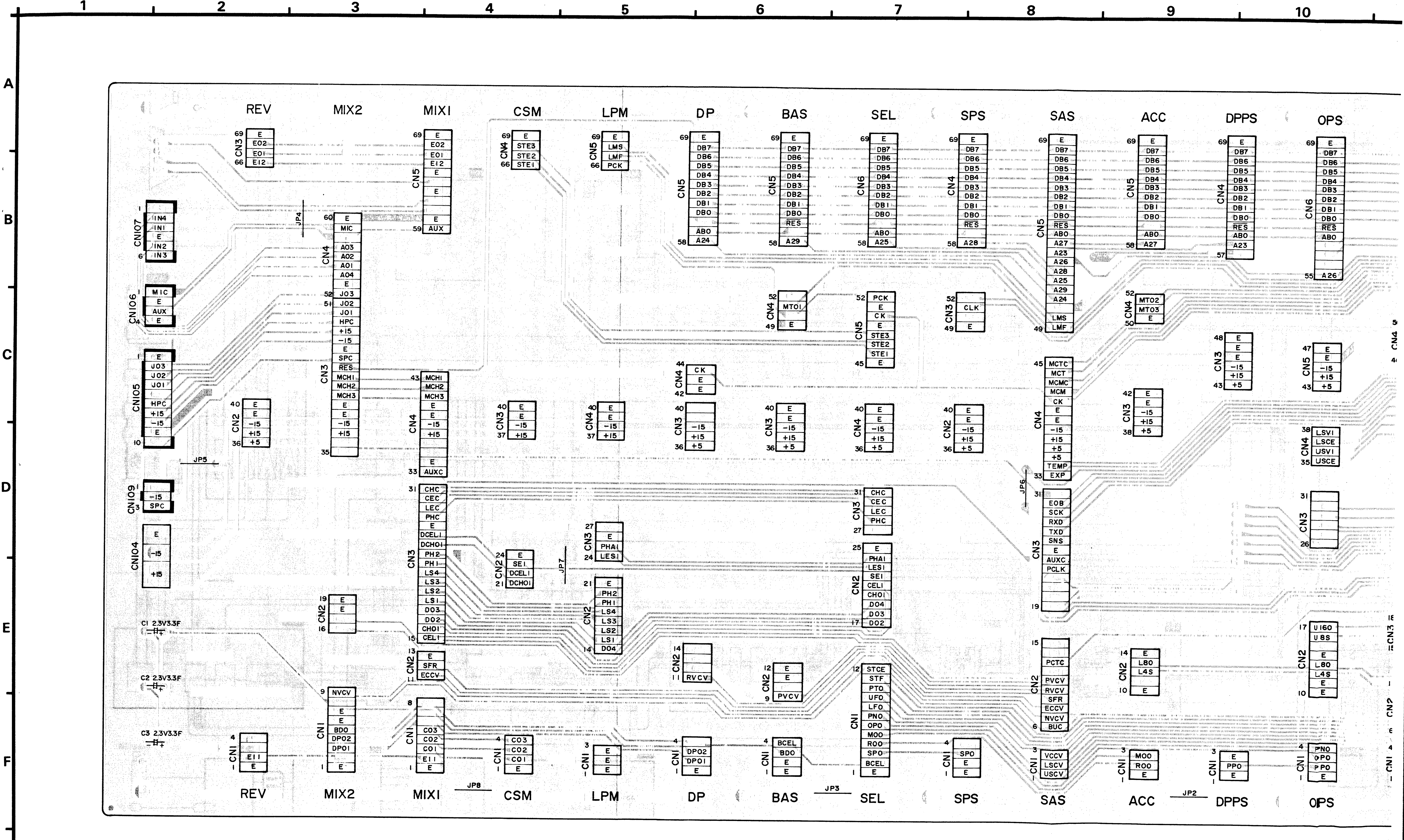
■ Signal Line

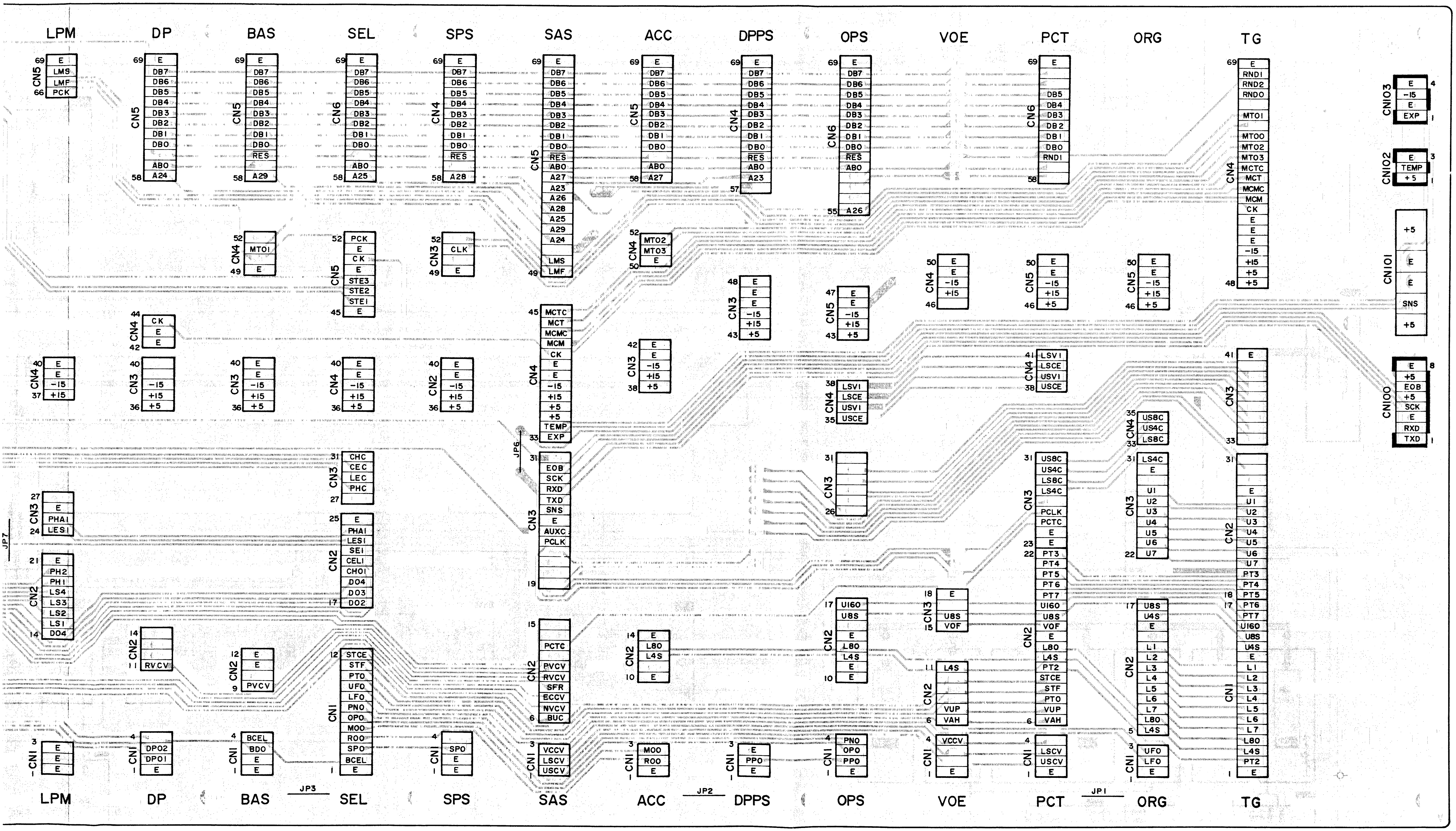
- Bus Line
- Sound Source Signal or Clock Signal
- Tone Signal


SAS
PCTC
PCLK
DWR
DB0~DB7
AB0~AB7
TGM
IC3 (TOC)
IC4 (UN)
IC5 (UQ)
IC7 (LN)
MC
MTMC
TG
MT00
MT01
MT02
MT03
RND1
Output Buffer
L4S
L80
U4S
U8S
U160
MT02
MT03
RND1
PT2~7
U1~U7
MT01
MT00
MC
MTMC
Master Clock OSC
CK
MCT
MCM
MCTC
MCMC
IC1
IC2
ECLS
ECUS
MCTC
MCMC
MCT
MCM
USCV
LSCV
VCCV
RES
A23~A29
AB0
DB0~DB7
ORG
Upper Flute Filter
U.String Filter
Lower Flute Filter
L.String Filter
US4C
US8C
LS4C
LS8C
UFO
LFO
PCT
VAH
VUP
PCLK
PCTC
US4C
US8C
LS4C
LS8C
Data Latch
Percussive Tone Filter
String Ensemble Filter
USCE
USVI
LSCE
LSVI
USCV
LSCV
PTO
STF
STCE
OPS
Micro Computer
Orchestral Presets Filter, Compander
Harmonic Control
OPO
PNO
PPO
DPPS
RES
A23
AB0
Digital Percussive Presets
ACC
A27
AB0
Data Latch
Melodic Orchestra
MOO
ROO
MPC
SUB CPU
TXD
RXD
E
SCK
+5
EOB
+5
E
MAIN CPU
CK
SNS
Serial Bus
LMS,LMF
PVCV,RVCV
ECCV,NVCV
EXP
TEMP
SFR
AUXC
SEL
A25
AB0
CK
Gate Array
UFO
LFO
PTO
OPO
PNO
MOO
ROO
Input Selector
Volume Control
SPO
CHC,CEC,LEC,PHC
PCK
LESI
LPM
LMF
LMS
Tremolo Modulation
LS1
LS2
LS3
CHC,CEC,LEC,PHC
SPS
CLK
A28
Micro-Computer
ROM
Gate Array
PLL
Vibrato
D/A
Filter
Envelope
SPO
RES
BAS
MT01
PVCV
A29
Micro Computer
ROM
Gate Array
PLL
VCA
D/A
Filter
Envelope
BCEL
BDO
RES
DP
CK
A24
AB0
Gate Array
WAVE ROM
D/A
Level
Filter
VCA
RVCV
DPO1
DPO2
MIX 1
ECCV
Reverb
VCA
E01
E12
E02
RE
E01
E12
E02
Adapt Diffrential M (ADM)
Serial Bus
SUB CPU
+5
CPSL
SUB CPU
CPL
SUB CPU
MD
LAMP
SUB CPU
UKB
SUB CPU
LKB
SUB CPU
CPR
LAMP
SUB CPU
CPSR
PKB
COM1
COM4
IB0
IB7
PEDAL KEYBOARD
FSW2
COM1
FSW1
COM1
EXP
-15
E

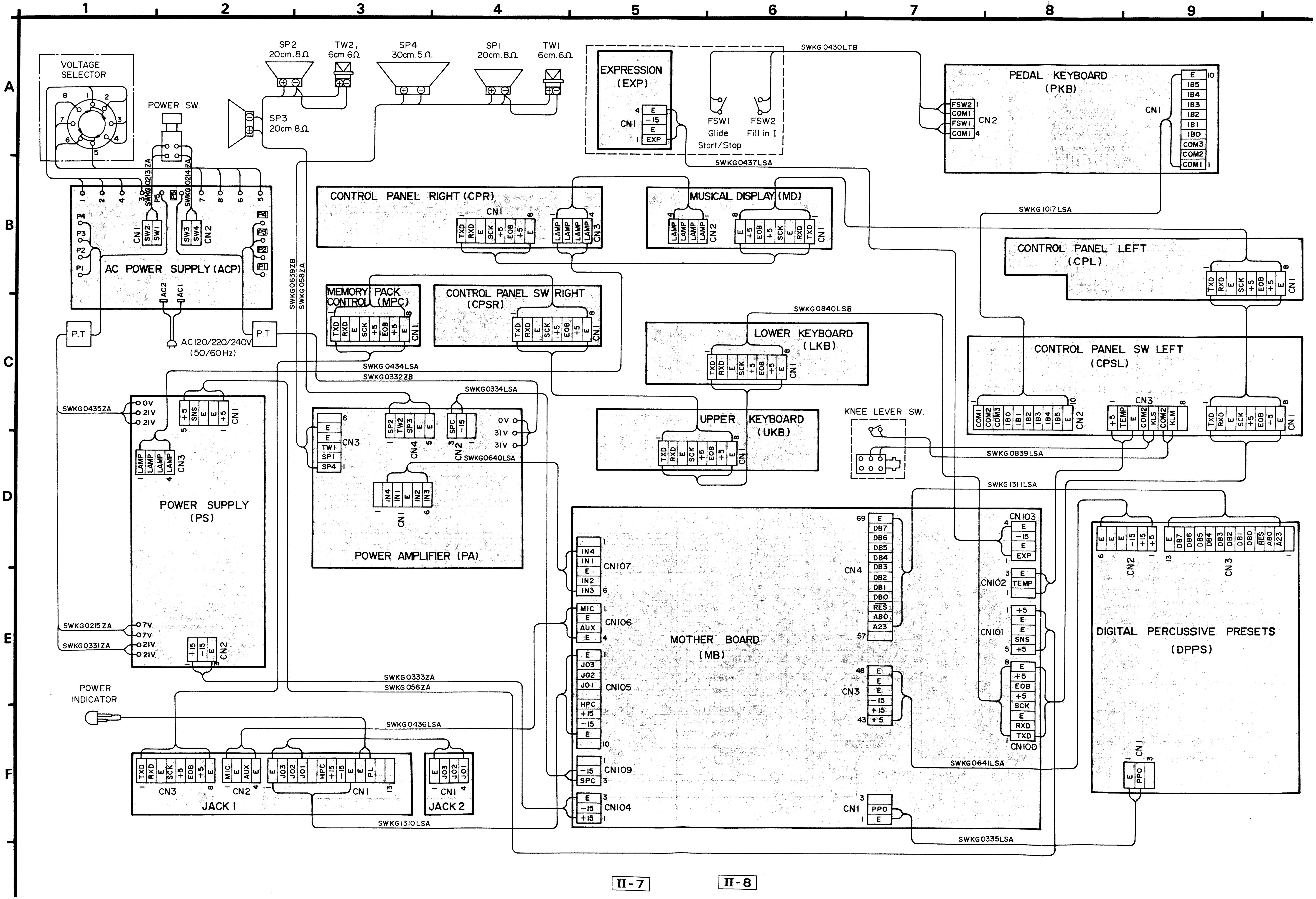

Output Buffer
L4S
L8O
U4S
U8S
U16O
MTO2
MTO3
RND1
PT2~7
U1~U7
MTO1
MTOO
CK
MCT
MCM
Master Clock OSC
ORG
Upper Flute Filter U.String Filter
Lower Flute Filter L.String Filter
US4C
US8C
LS4C
LS8C
UFO
LFO
PCT
Data Latch
Percussive Tone Filter
String Ensemble Filter
VAH
VUP
PCLK
PCTC
USCE
USVI
LSCE
LSVI
USCV
LSCV
PTO
STF
STCE
OPS
Micro Computer
Orchestral Presets Filter, Compander
Harmonic Control
RES
A26
ABO
OPO
PNO
PPO
DPPS
Digital Percussive Presets
A23
ACC
Data Latch
Melodic Orchestra
Rhythmic Orchestra
A27
MOO
ROO
VOE
Vocal Ensemble (Ah/Humming)
VCCV
VOF
SEL
Gate Array
A25
Input Selector
Volume Control
Output Selector
MIX
Amp
SPO
CHC,CEC,LEC,PHC
PCK
LESI
DO4
PHAI
DO2
DO3
CELI
CHOI
STE1
STE2
STE3
BCEL
SEI
LPM
Tremolo Modulation
Phaser Modulation
LMF
LMS
LS1
LS2
LS3
LS4
PH1
PH2
CSM
String Ensemble Modulation
Celeste, Chorus Modulation
DCELI
DCHOI
CO1
CO2
CO3
SPS
Micro-Computer
ROM
Gate Array
PLL
Vibrato
D/A
Filter
Envelope
CLK
A28
BAS
MTO1
PVCV
A29
VCA
BDO
DP
WAVE ROM
D/A
Level
Filter
VCA
RVCV
A24
DPO1
DPO2
MIX 1
ECCV
Mixing
Compander
Reverb Drive Amp
Mixing Amp
VCA
Phaser Circuit
Aux Detector
EO1
E12
EO2
E11
SFR
AUXC
MCH1
MCH2
MCH3
AUX
REV
Adapt Diffrential Modulation (ADM)
MIX 2
Noise Reduction
NVCV
VCA
MIX
Relay
Filter
Relay Driver
MIC
RES
SPC
HPC
AO1~AO4
JO1~JO3
PA
SP4
SP1
TW1
SP2
TW2
SP3
CH4
CH1
CH2
CH3
IN4
IN1
IN2
IN3
30cm, 5Ω
20cm, 8Ω
6cm, 6Ω
20cm, 8Ω
6cm, 6Ω
20cm, 8Ω
JACK 2
J1
J2
J3
JO1
JO2
JO3
JACK 1
HP
MIC
AUX
LINE OUT
FD
Serial Bus
SUB CPU
CPSR
PS
+15V
−15V
E
+5V
E
SNS
LAMP
Power Trans
ACP
AC1
AC2
AC
Power SW.

MOTHER CIRCUIT BOARD (MB)

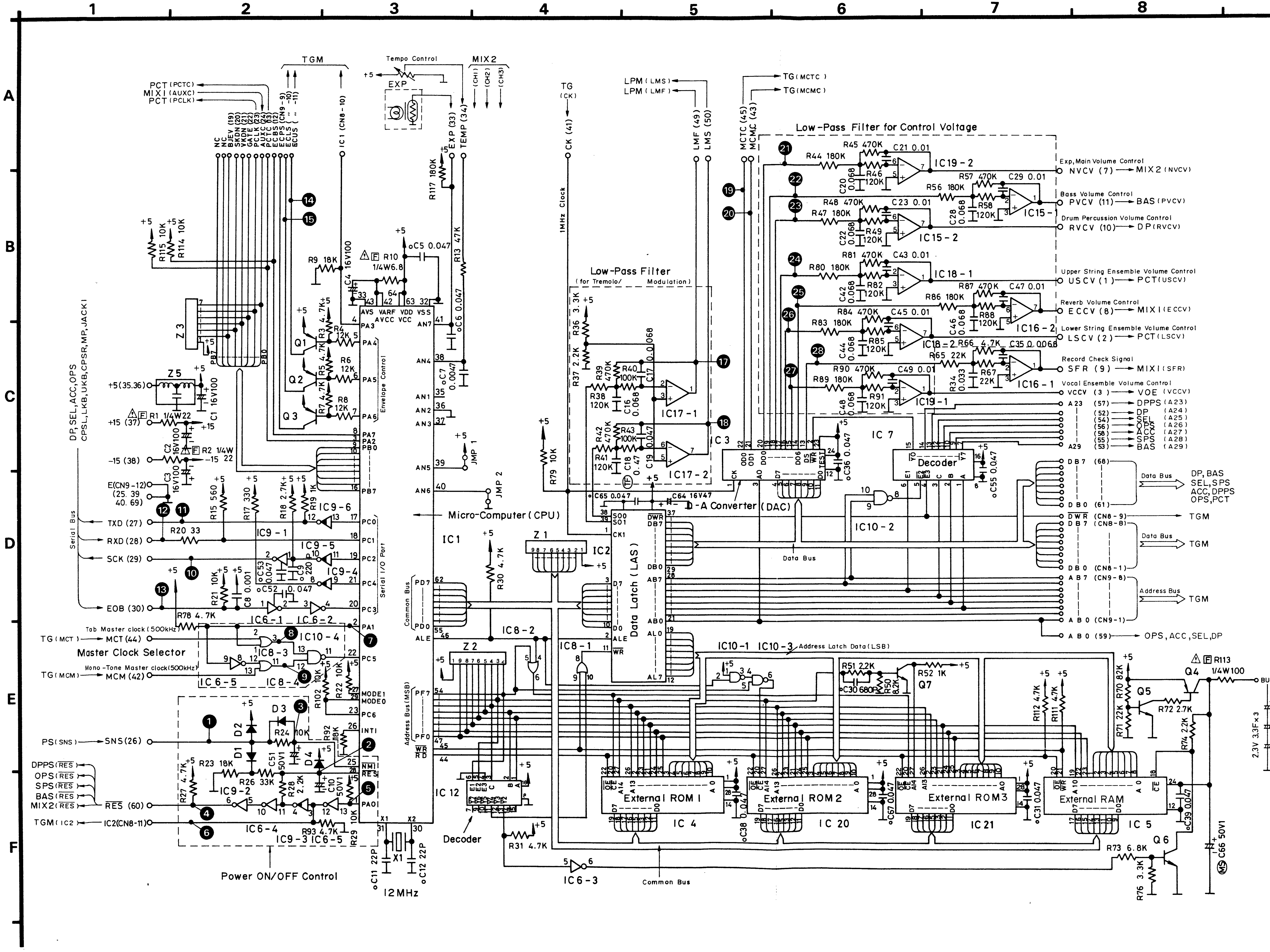

1 2 3 4 5 6 7 8 9 10
A B C D E F
REV MIX2 MIX1 CSM LPM DP BAS SEL SPS SAS ACC DPPS OPS
CN107 IN4 IN1 E IN2 IN3
CN106 MIC E AUX E
CN105 E J03 J02 J01 HPC +15 −15 E
CN109 −15 SPC
CN104 E −15 +15
JP4 JP5 JP6 JP7 JP8 JP3 JP2
CN3 E E02 E01 E12
CN4 E MIC A03 A02 A01 A04 E J03 J02 J01 HPC +15 −15 E SPC
CN3 RES MCH1 MCH2 MCH3 E E −15 +15
CN5 E E02 E01 E12 E E E AUX
CN4 MCH1 MCH2 MCH3 E E −15 +15 E AUXC
CN3 CHC CEC LEC PHC E DCEL1 DCHO1 PH2 PH1 LS4 LS3 LS2 LS1 D03 D02 CHO1 CEL1
CN2 E SFR ECCV
CN1 C03 C02 C01 E11 E
CN4 STE3 STE2 STE1
CN5 LMS LMF PCK
CN5 DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 AB0 A24
DB0 RES A29
DB0 AB0 A25
DB0 RES A28
CN5 DB0 RES AB0 A27 A23 A26 A28 A25 A29 A24 LMS LMF
AB0 A27
RES AB0 A23
RES AB0 A26
CN4 MT01 E
CN5 PCK E CK E STE3 STE2 STE1 E
CN3 CLK E
CN4 MT02 MT03 E
CN4 CK E E
CN4 MCTC MCT MCMC MCM CK E −15 +15 +5 +5 TEMP EXP
CN3 EOB SCK RXD TXD SNS E AUXC PCLK
CN4 LSV1 LSCE USV1 USCE
CN3 PHA1 LES1
CN2 E SE1 DCEL1 DCHO1
CN2 PH2 PH1 LS4 LS3 LS2 LS1 D04
CN3 CHC CEC LEC PHC
CN2 E PHA1 LES1 SE1 CEL1 CHO1 D04 D03 D02
CN2 RVCV
CN2 E E PVCV
CN1 STCE STF PTO UFO LFO PNO OPO MOO ROO SPO BCEL E
CN2 PCTC PVCV RVCV SFR ECCV NVCV BUC
CN2 E L80 L4S E
CN2 U160 U8S E L80 L4S E E
CN1 E11 E
CN1 NVCV E E BDO DPO2 DPO1 E
CN1 CO3 CO2 CO1 E
CN1 DPO2 DPO1 E
CN1 BCEL BDO E E
CN1 SPO E E
CN1 VCCV LSCV USCV
CN1 MOO ROO E
CN1 E PPO E
CN1 PNO OPO PPO E
C1 2.3V3.3F
C2 2.3V3.3F
C3 2.3V3.3F


LPM
DP
BAS
SEL
SPS
SAS
ACC
DPPS
OPS
VOE
PCT
ORG
TG
CN5 E LMS LMF PCK
CN5 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 AB0 A24
CN5 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 RES A29
CN6 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 AB0 A25
CN4 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 RES A28
CN5 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 RES AB0 A27 A23 A26 A28 A25 A29 A24 LMS LMF
CN5 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 AB0 A27
CN4 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 RES AB0 A23
CN6 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 RES AB0 A26
CN6 E DB5 DB4 DB3 DB2 DB1 DB0 RND1
CN4 E RND1 RND2 RND0 MT01 MT00 MT02 MT03 MCT MCTC MCMC MCM CK E E E -15 +15 +5 +5
CN103 E -15 E EXP
CN102 E TEMP +5
CN101 +5 E E SNS +5
CN100 E +5 EOB +5 SCK E RXD TXD
CN4 MT01 E
CN5 PCK E CK E STE3 STE2 STE1 E
CN3 CLK E
CN4 MT02 MT03 E
CN4 CK E E
CN4 MCTC MCT MCMC MCM CK E E -15 +15 +5 +5 TEMP EXP
CN3 E E -15 +15 +5
CN3 E E E -15 +15 +5
CN5 E E -15 +15 +5
CN4 E E -15 +15
CN5 E E -15 +15 +5
CN5 E E -15 +15 +5
CN4 E E -15 +15
CN3 -15 +15 +5
CN3 E E -15 +15 +5
CN4 E E -15 +15 +5
CN2 E E -15 +15 +5
CN4 LSV1 LSCE USV1 USCE
CN4 LSV1 LSCE USV1 USCE
CN4 US8C US4C LS8C
CN3 E
JP6
CN3 EOB SCK RXD TXD SNS E AUXC PCLK
CN3 CHC CEC LEC PHC
CN3 E PHA1 LES1
JP7
CN2 PHA1 LES1 SE1 CEL1 CH01 D04 D03 D02
CN2 E PH2 PH1 LS4 LS3 LS2 LS1 D04
CN3
CN3 US8C US4C LS8C LS4C PCLK PCTC E E
CN3 LS4C E U1 U2 U3 U4 U5 U6 U7
CN2 E U1 U2 U3 U4 U5 U6 U7 PT3 PT4 PT5 PT6 PT7 U160 U8S U4S E L1 L2 L3 L4 L5 L6 L7 L80 L4S PT2 E
CN2 RVCV
CN2 E E PVCV
CN1 STCE STF PTO UFO LFO PNO OPO MOO ROO SPO BCEL E
CN2 PCTC PVCV RVCV SFR ECCV NVCV BUC
CN2 E L80 L4S E
CN2 U160 U8S E L80 L4S E E
CN3 E U8S VOF
CN2 L4S VUP VAH
CN2 PT3 PT4 PT5 PT6 PT7 U160 U8S VOF E L80 L4S PT2 STCE STF PTO VUP VAH
CN2 U8S U4S E L1 L2 L3 L4 L5 L6 L7 L80 L4S
CN1 E E E
CN1 DP02 DP01 E
CN1 BCEL BD0 E E
CN1 SPO E E
CN1 VCCV LSCV USCV
CN1 MOO ROO E
CN1 E PPO E
CN1 PNO OPO PPO E
CN1 VCCV E
CN1 LSCV USCV E
CN1 UFO LFO E
CN1
JP3
JP2
JP1

WIRING CONNECTION DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
VOLTAGE SELECTOR
POWER SW.
SP2 20cm.8Ω
TW2 6cm.6Ω
SP4 30cm.5Ω
SP1 20cm.8Ω
TW1 6cm.6Ω
SP3 20cm.8Ω
EXPRESSION (EXP)
CN1
E
-15
E
EXP
FSW1 Glide Start/Stop
FSW2 Fill in I
SWKG0430LTB
SWKG0437LSA
PEDAL KEYBOARD (PKB)
CN2
FSW2
COM1
FSW1
COM1
CN1
E
IB5
IB4
IB3
IB2
IB1
IB0
COM3
COM2
COM1
SWKG0213ZA
SWKG0214ZA
AC POWER SUPPLY (ACP)
CN1
SW2
SW1
SW3
SW4
CN2
P1
P2
P3
P4
AC1
AC2
P.T
AC120/220/240V (50/60Hz)
SWKG0639ZB
SWKG0580ZA
CONTROL PANEL RIGHT (CPR)
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
CN3
LAMP
MUSICAL DISPLAY (MD)
CN2
SWKG1017LSA
CONTROL PANEL LEFT (CPL)
MEMORY PACK CONTROL (MPC)
CONTROL PANEL SW RIGHT (CPSR)
SWKG0840LSB
LOWER KEYBOARD (LKB)
CONTROL PANEL SW LEFT (CPSL)
COM1
COM2
COM3
IB0
IB1
IB2
IB3
IB4
IB5
TEMP
KLS
KLM
SWKG0434LSA
SWKG0332ZB
SWKG0334LSA
SWKG0435ZA
0V
21V
SNS
POWER SUPPLY (PS)
CN3
TW1
SP1
SP4
SP2
TW2
SP3
CN4
SPC
0V
31V
SWKG0640LSA
UPPER KEYBOARD (UKB)
KNEE LEVER SW.
SWKG0839LSA
SWKG1311LSA
IN4
IN1
IN2
IN3
POWER AMPLIFIER (PA)
MOTHER BOARD (MB)
CN107
CN106
MIC
AUX
CN105
J03
J02
J01
HPC
+15
-15
CN109
CN104
CN4
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
RES
AB0
A23
CN3
CN103
CN102
CN101
CN100
DIGITAL PERCUSSIVE PRESETS (DPPS)
PPO
SWKG0215ZA
SWKG0331ZA
7V
SWKG0333ZA
SWKG056ZA
POWER INDICATOR
SWKG0436LSA
SWKG0641LSA
JACK 1
PL
JACK 2
SWKG1310LSA
SWKG0335LSA

SYSTEM ASSIGNER CIRCUIT DIAGRAM (SAS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TGM
Tempo Control
EXP
MIX 2
PCT (PCTC)
MIX I (AUXC)
PCT (PCLK)
TG (CK)
LPM (LMS)
LPM (LMF)
TG (MCTC)
TG (MCMC)
Low-Pass Filter for Control Voltage
Low-Pass Filter (for Tremolo/ Modulation)
1MHz Clock
Exp, Main Volume Control
NVCV (7) → MIX 2 (NVCV)
Bass Volume Control
PVCV (11) → BAS (PVCV)
Drum Percussion Volume Control
RVCV (10) → DP (RVCV)
Upper String Ensemble Volume Control
USCV (1) → PCT (USCV)
Reverb Volume Control
ECCV (8) → MIX I (ECCV)
Lower String Ensemble Volume Control
LSCV (2) → PCT (LSCV)
Record Check Signal
SFR (9) → MIX I (SFR)
Vocal Ensemble Volume Control
VCCV (3) → VOE (VCCV)
A23 (57) → DPPS (A23)
(52) → DP (A24)
(54) → SEL (A25)
(56) → OPS (A26)
(58) → ACC (A27)
(55) → SPS (A28)
A29 (53) → BAS (A29)
DB7 (68)
DB0 (61)
Data Bus
DP, BAS
SEL, SPS
ACC, DPPS
OPS, PCT
DWR (CN8-9) → TGM
DB7 (CN8-8)
DB0 (CN8-1)
AB7 (CN9-8)
AB0 (CN9-1)
Address Bus
A B 0 (59) → OPS, ACC, SEL, DP
IC 7
Decoder
IC 10-2
IC 3
D-A Converter (DAC)
IC 2
Data Latch (LAS)
IC 1
Micro-Computer (CPU)
Z 1
Z 2
Z 3
Z 5
IC 12
Decoder
IC 8-1
IC 8-2
IC 10-1
IC 10-3
Address Latch Data (LSB)
External ROM 1
IC 4
External ROM 2
IC 20
External ROM 3
IC 21
External RAM
IC 5
Q4
Q5
Q6
Q7
Memory Buck-up
2.3V 3.3F×3
BUC (6)
IC 17-1
IC 17-2
IC 19-2
IC 15-1
IC 15-2
IC 18-1
IC 16-2
IC 18-2
IC 16-1
IC 19-1
DP, SEL, ACC, OPS
CPSL, LKB, CPSR, MP, JACK I
+5 (35.36)
+15 (37)
-15 (38)
E (CN9-12) (25. 39 40. 69)
Serial Bus
TXD (27)
RXD (28)
SCK (29)
EOB (30)
Serial I/O Port
Envelope Control
Tab Master clock (500kHz)
TG (MCT) → MCT (44)
Master Clock Selector
Mono-Tone Master clock (500kHz)
TG (MCM) → MCM (42)
IC 10-4
IC 8-3
IC 8-4
IC 6-5
IC 6-1
IC 6-2
IC 9-1
IC 9-4
IC 9-5
IC 9-6
PS (SNS) → SNS (26)
DPPS (RES)
OPS (RES)
SPS (RES)
BAS (RES)
MIX2 (RES)
RES (60)
TGM (IC2) → IC2 (CN8-11)
IC 9-2
IC 6-4
IC 9-3
Power ON/OFF Control
Common Bus
Address Bus (MSB)
12MHz
X1
IC 6-3
Common Bus
JMP 1
JMP 2
Q1
Q2
Q3
D1
D2
D3
D4

NOTES:

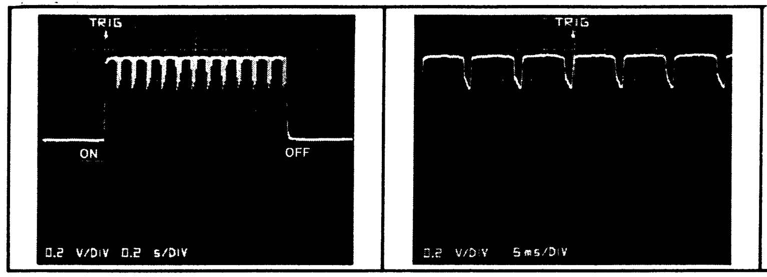
- IC'S
  - IC1: SVIG7811G028
  - IC2: SVIG65002014
  - IC3: SVIG65002017
  - IC4: MN23128PGD
  - IC5: SVIGM512820R
  - IC6: SVIGTC40H004
  - IC7, 12: SVIGM74LS138
  - IC8: SVIGM74LS32
  - IC9: SVIGM53216
  - IC10: SVIGM74LS00
  - IC15~19: SVIGM5218L (SVIGNJM4558S)
  - IC20: MN23128PGF
  - IC21: MN23128PGE
- TRANSISTORS
  - Q1~4: 2SA1015GR
  - Q5: 2SC2320LFG
  - Q6, 7: 2SC1047C
- DIODES
  - D1~4: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1, 2: EXBP88472MM
  - Z3: EXBP86103MM
  - Z5: EXATA223S
- QUARTZ OSCILLATOR
  - X1: SVQG43U1200A

SYSTEM ASSIGNER CIRCUIT BOARD (SAS)

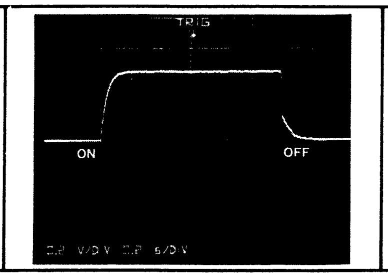
1 2 3 4 5 6 7 8 9

A

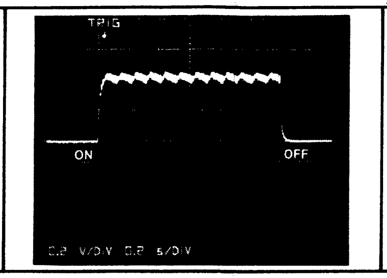
❶ SNS POWER ON→OFF



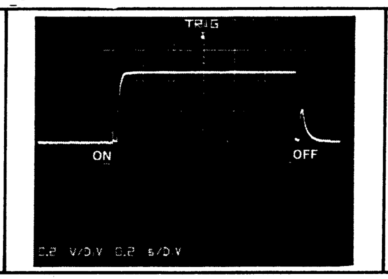
❷ RES



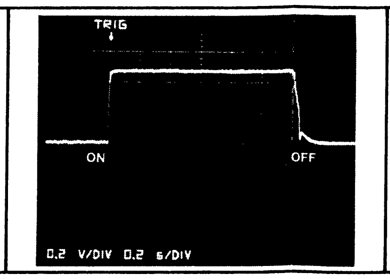
❸ NMI



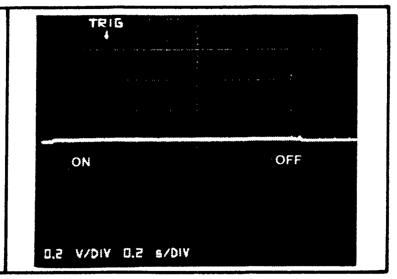
❹ RES



❺ PAO

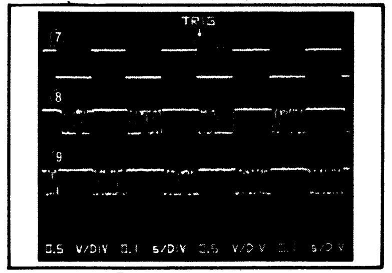


❻ IC2



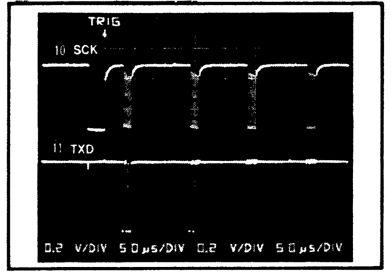
B

❼, ❽, ❾



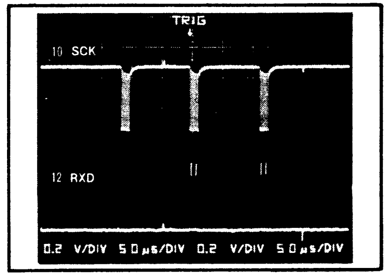
C

❿ SCK, ⓫ TXD



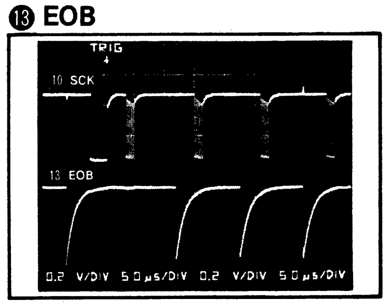
D

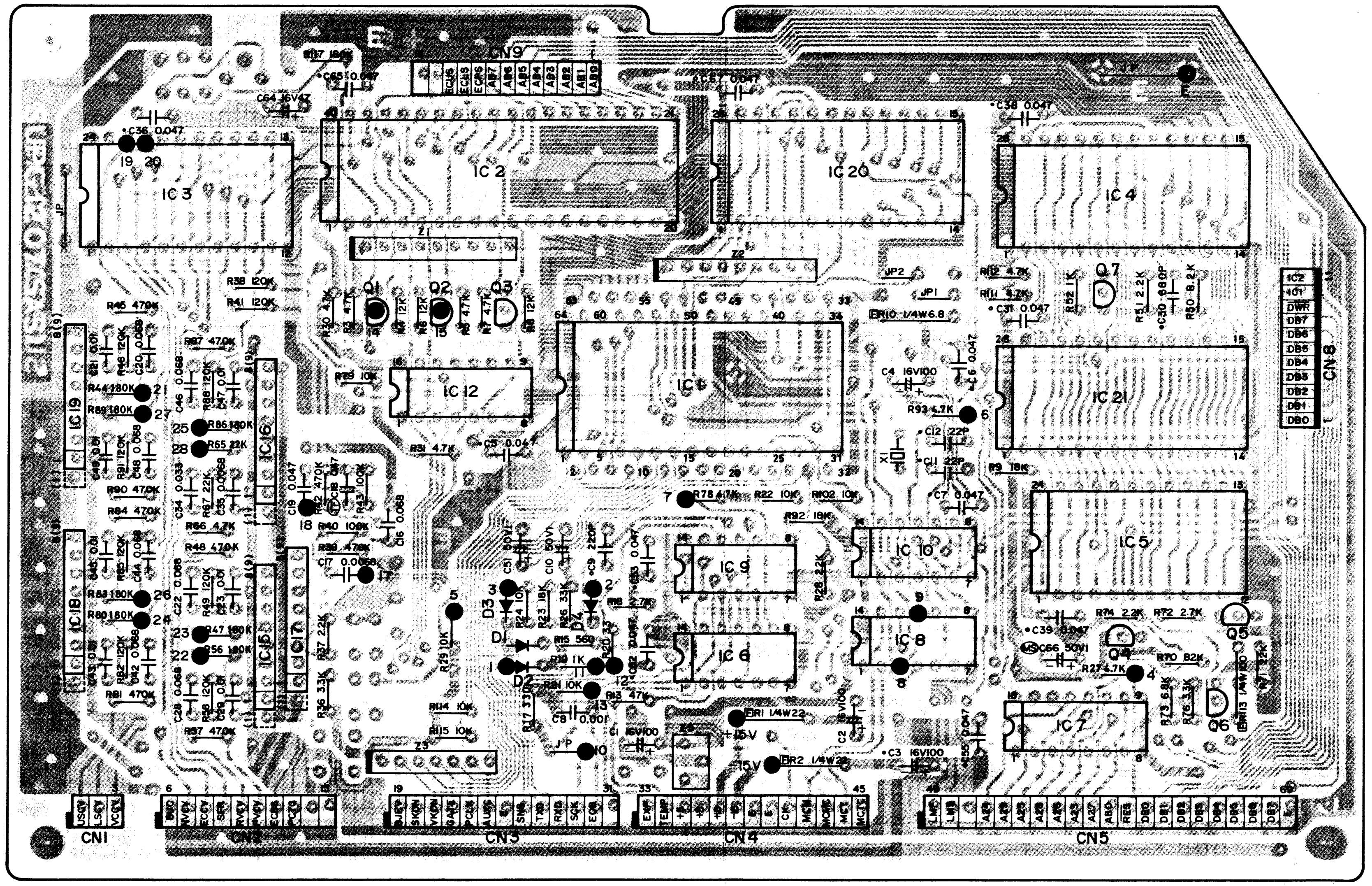
⓬ RXD



E

⓭ EOB

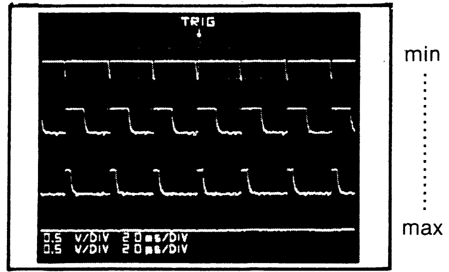



IC 3
IC 2
IC 20
IC 4
IC 12
IC 1
IC 21
IC 19
IC 16
IC 18
IC 15
IC 9
IC 10
IC 5
IC 6
IC 8
IC 7
Q1
Q2
Q3
Q4
Q5
Q6
Q7
CN1
CN2
CN3
CN4
CN5
CN8
CN9
D1
D2
D3
D4
+15V
-15V

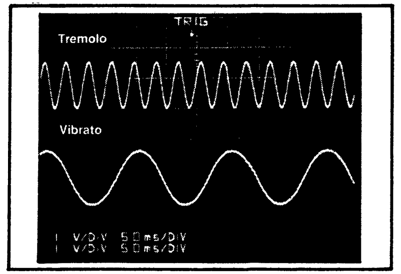
Circuit view on top of P.C.B.

SXPG12072

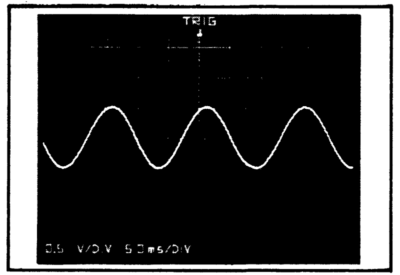
⓮, ⓯ U&L Sustain Control



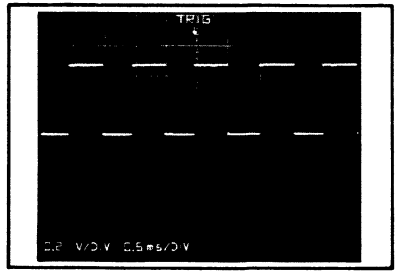
⓱ Tremolo: fast, vibrato



⓲ Tremolo: fast

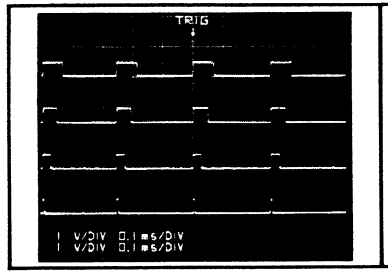


⓳, ⓴ Master clock



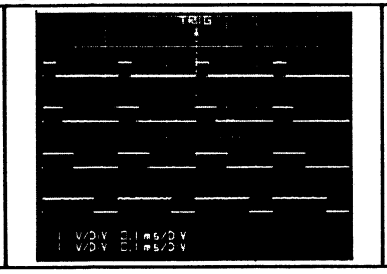
F

㉑ Main Vol, EXP Control



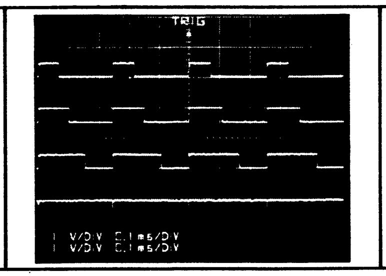
- EXP Pedal............................max
- Main Volume........................min ~ max

㉒ Bass Volume Control



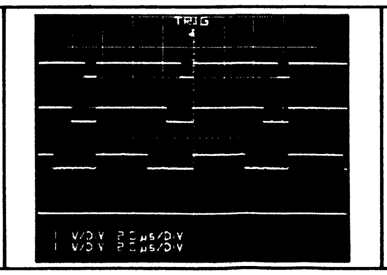
- Main Vol., EXP....................max
- Bass Volume........................min ~ max

㉓ Drum Percussion Vol. Control



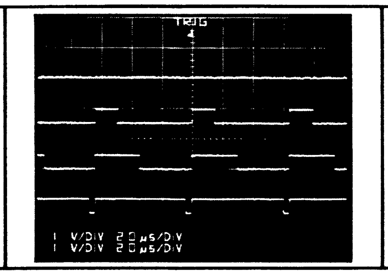
- Drum Percussion.................on
- Main Vol., EXP....................max
- Volume..................................min ~ max

㉔, ㉖ U&L String Ensemble Volume Control



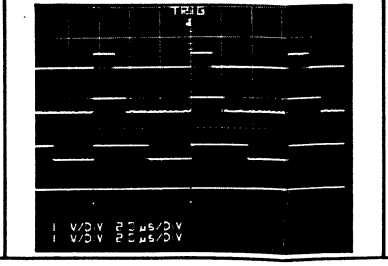
- String Ensemble
- Volume..................................min ~ max

㉕ Reverb Volume Control



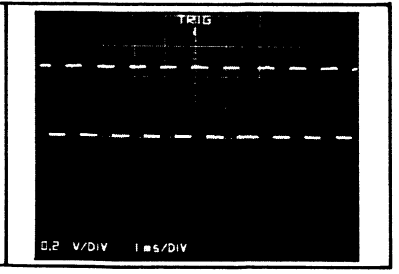
- Reverb
- Volume..................................min ~ max

㉗ U&L Vocal Ensemble Volume Control



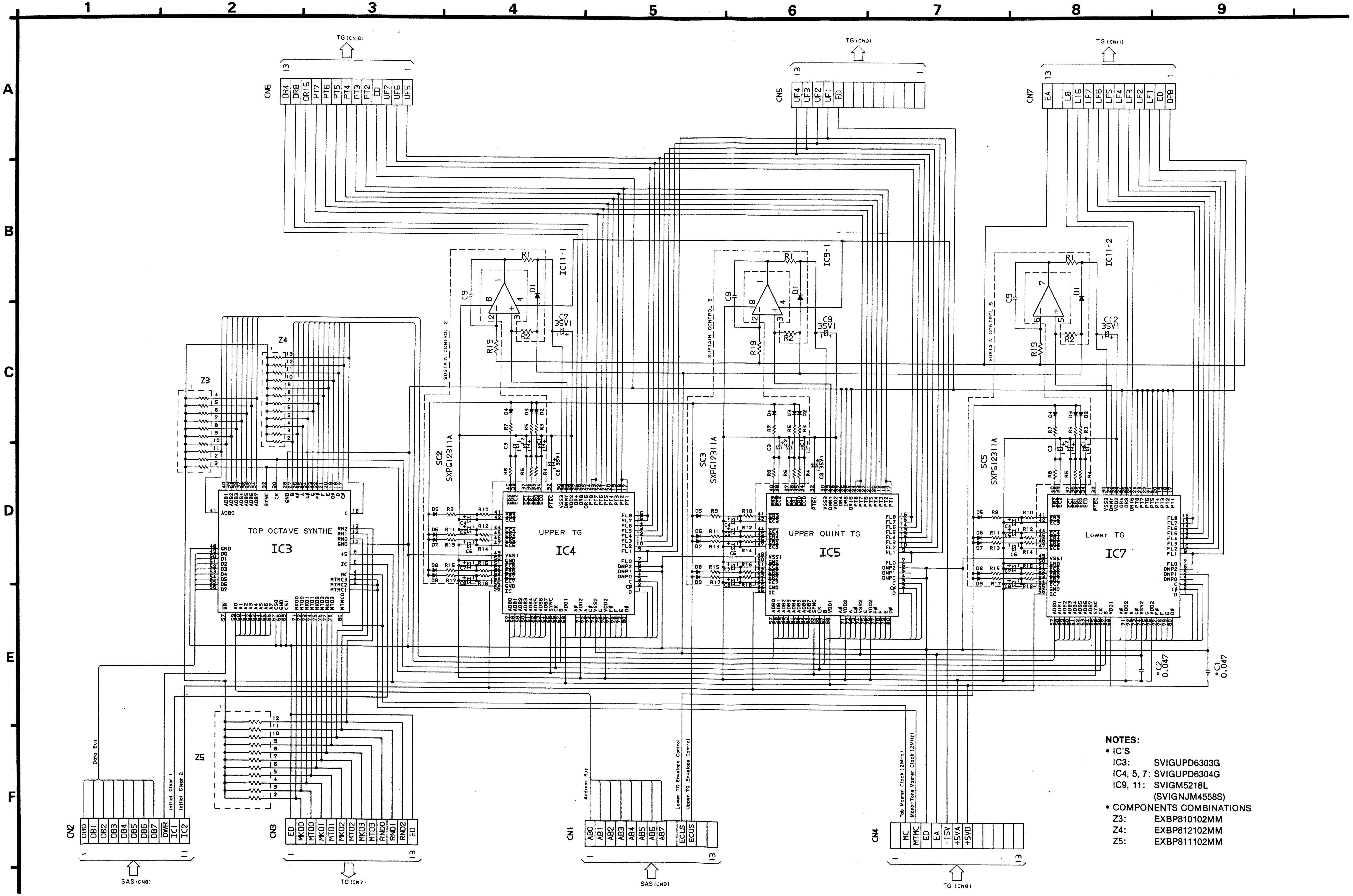
- Vocal Ensemble
- Volume..................................min ~ max

㉘ Record Check Signal



- Record SW..........................ON
- PCC SW...............................ON
- Lower Key..........................C5

TONE GENERATOR MODULE CIRCUIT DIAGRAM (TGM)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TG (CN10)
CN6
DR4
DR8
DR16
PT7
PT6
PT5
PT4
PT3
PT2
ED
UF7
UF6
UF5
TG (CN9)
CN5
UF4
UF3
UF2
UF1
ED
TG (CN11)
CN7
EA
L8
L16
LF7
LF6
LF5
LF4
LF3
LF2
LF1
ED
DP8
IC11-1
IC9-1
IC11-2
SUSTAIN CONTROL 2
SUSTAIN CONTROL 3
SUSTAIN CONTROL 5
SC2
SXPG12311A
SC3
SXPG12311A
SC5
SXPG12311A
Z3
Z4
Z5
TOP OCTAVE SYNTHE
IC3
UPPER TG
IC4
UPPER QUINT TG
IC5
Lower TG
IC7
C2 0.047
C1 0.047
Data Bus
Initial Clear 1
Initial Clear 2
CN2
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
DWR
IC1
IC2
SAS (CN8)
CN3
ED
MK00
MT00
MK01
MT01
MK02
MT02
MK03
MT03
RND0
RND1
RND2
ED
TG (CN7)
Address Bus
Lower TG Envelope Control
Upper TG Envelope Control
CN1
AB0
AB1
AB2
AB3
AB4
AB5
AB6
AB7
ECLS
ECUS
SAS (CN9)
Tab Master Clock (2MHz)
Mono-Tone Master Clock (2MHz)
CN4
MC
MTMC
ED
EA
-15V
+5VA
+5VD
TG (CN8)

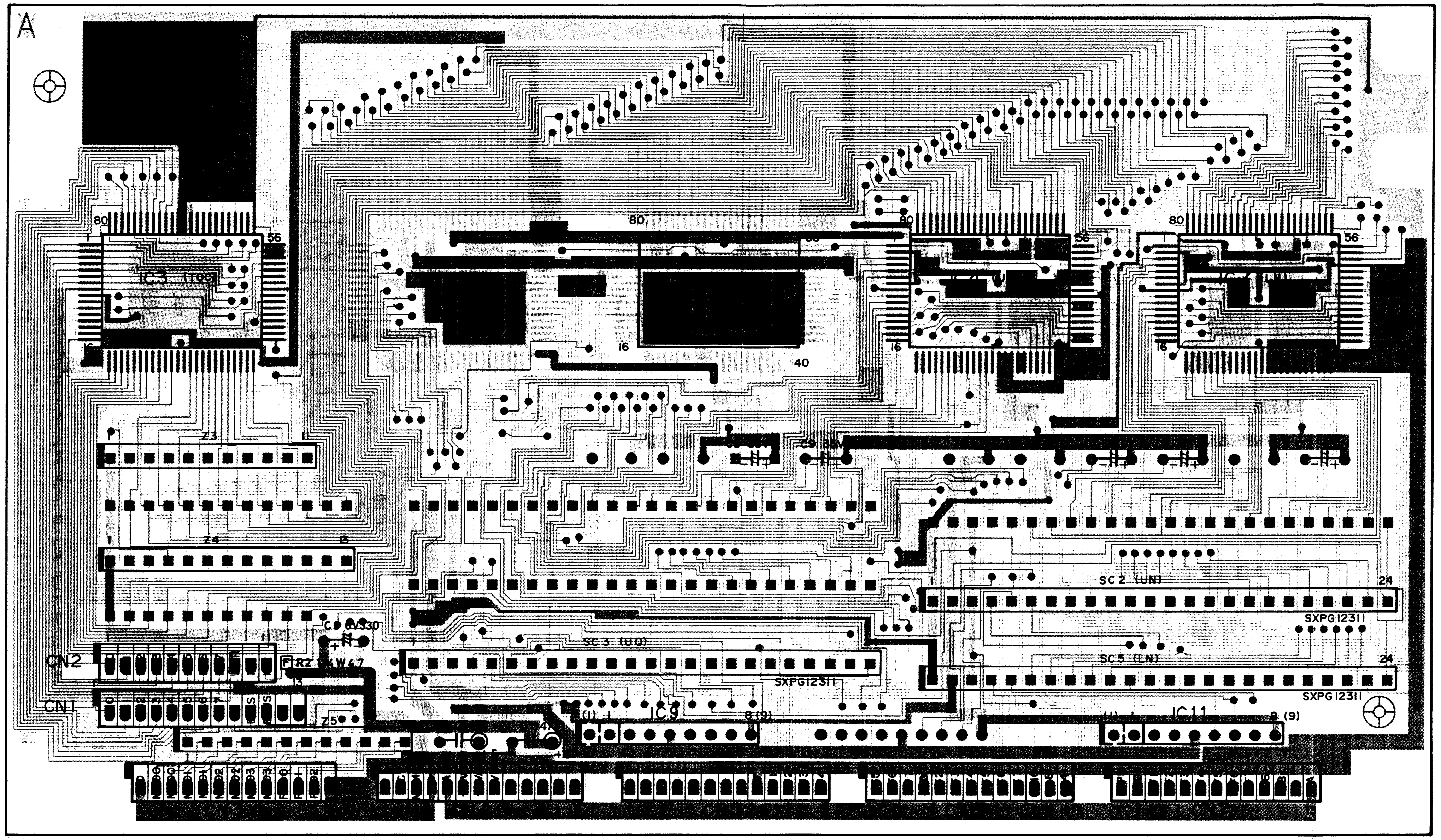
NOTES:

- IC'S
  - IC3: SVIGUPD6303G
  - IC4, 5, 7: SVIGUPD6304G
  - IC9, 11: SVIGM5218L (SVIGNJM4558S)
- COMPONENTS COMBINATIONS
  - Z3: EXBP810102MM
  - Z4: EXBP812102MM
  - Z5: EXBP811102MM

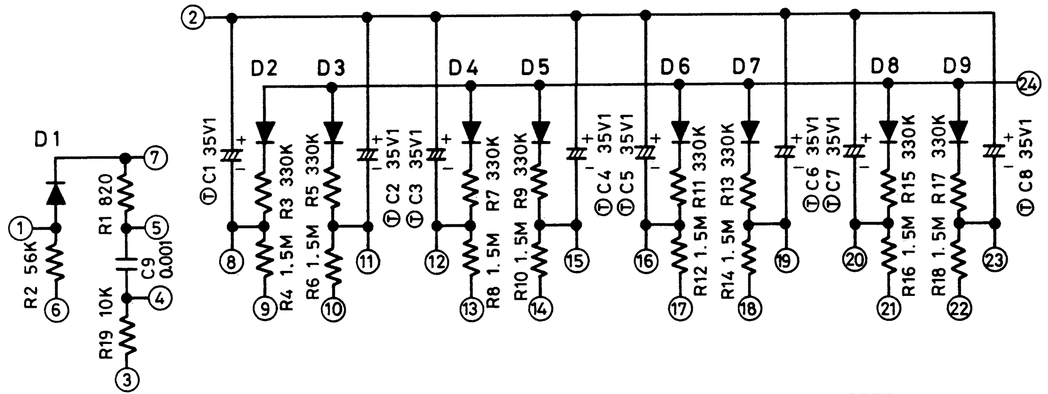
TONE GENERATOR MODULE CIRCUIT BOARD (TGM)

SXPG12062

Circuit view on top of P.C.B.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
A
IC3
80
56
16
40
Z3
Z4
Z5
CN2
CN1
C9 6V330
R2
SC3 (UQ)
SXPG12311
SC2 (UN)
SC5 (LN)
24
IC9
IC11
8 (9)

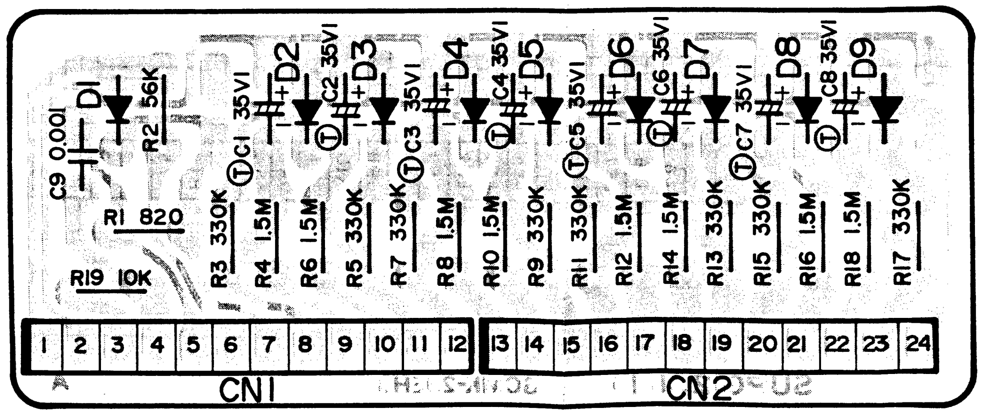
SUSTAIN CONTROL CIRCUIT DIAGRAM (SC)


D1
R1 820
R2 56K
R19 10K
C9 0.001
D2
D3
D4
D5
D6
D7
D8
D9
C1 35V1
C2 35V1
C3 35V1
C4 35V1
C5 35V1
C6 35V1
C7 35V1
C8 35V1
R3 330K
R4 1.5M
R5 330K
R6 1.5M
R7 330K
R8 1.5M
R9 330K
R10 1.5M
R11 330K
R12 1.5M
R13 330K
R14 1.5M
R15 330K
R16 1.5M
R17 330K
R18 1.5M
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔

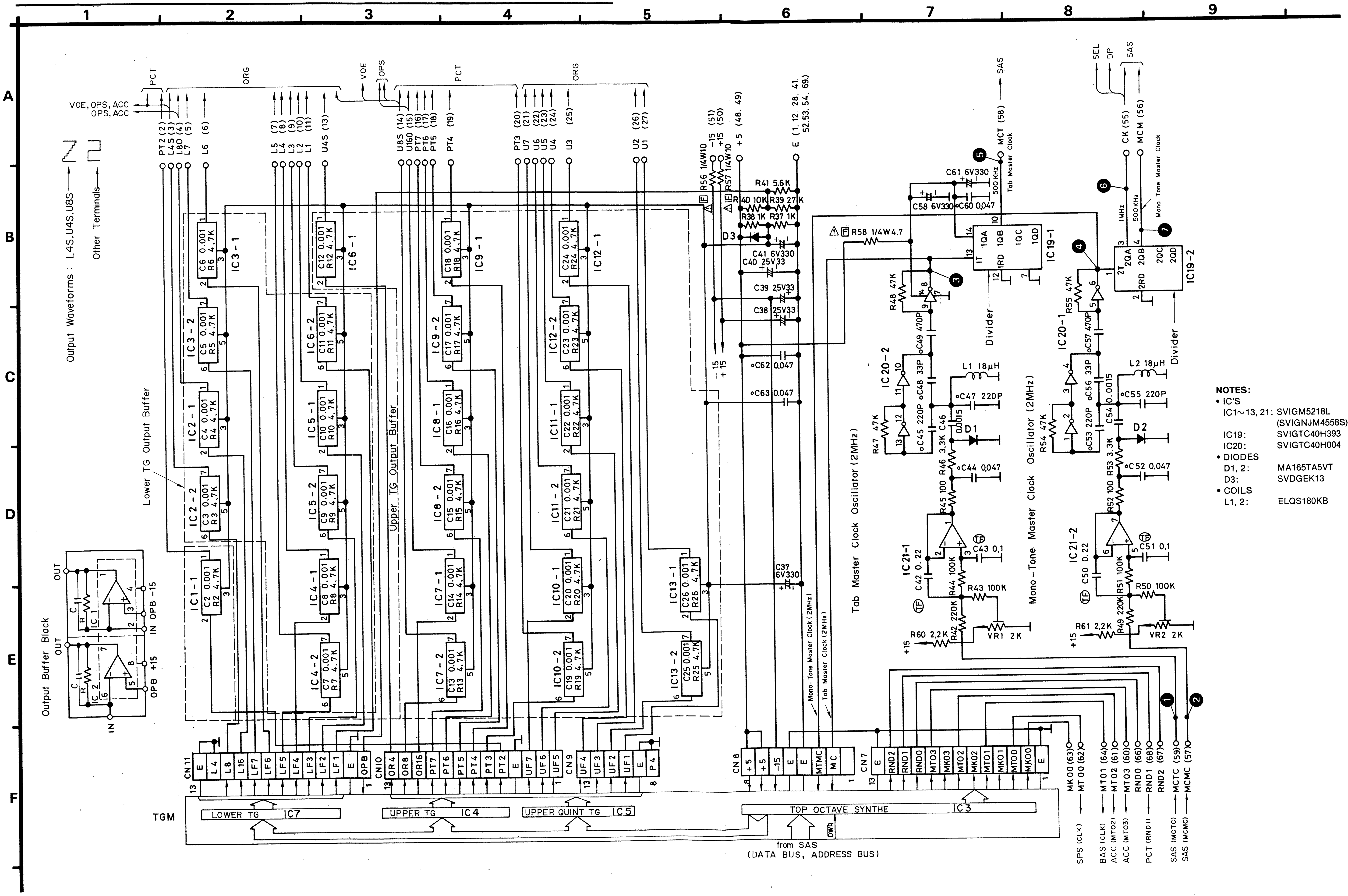
NOTES:
- DIODES
  D1~9: MA165TA5VT

SUSTAIN CONTROL CIRCUIT BOARD (SC)

SXPG12311


D1
R2 56K
C9 0.001
R1 820
R19 10K
D2
D3
D4
D5
D6
D7
D8
D9
C1 35V1
C2 35V1
C3 35V1
C4 35V1
C5 35V1
C6 35V1
C7 35V1
C8 35V1
R3 330K
R4 1.5M
R6 1.5M
R5 330K
R7 330K
R8 1.5M
R10 1.5M
R9 330K
R11 330K
R12 1.5M
R14 1.5M
R13 330K
R15 330K
R16 1.5M
R18 1.5M
R17 330K
1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20 21 22 23 24
CN1
CN2

TONE GENERATOR CIRCUIT DIAGRAM (TG)

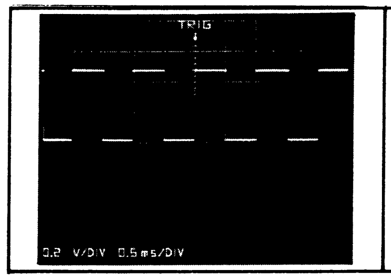

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
VOE, OPS, ACC
OPS, ACC
PCT
ORG
VOE
OPS
Output Waveforms : L4S, U4S, U8S
Other Terminals
PT2 (2)
L4S (3)
L8O (4)
L7 (5)
L6 (6)
L5 (7)
L4 (8)
L3 (9)
L2 (10)
L1 (11)
U4S (13)
U8S (14)
U16O (15)
PT7 (16)
PT6 (17)
PT5 (18)
PT4 (19)
PT3 (20)
U7 (21)
U6 (22)
U5 (23)
U4 (24)
U3 (25)
U2 (26)
U1 (27)
-15 (51)
+15 (50)
+5 (48. 49)
E (1. 12. 28. 41. 52.53. 54. 69)
MCT (58)
SAS
Tab Master Clock
500 KHz
SEL
DP
CK (55)
MCM (56)
Mono-Tone Master Clock
1MHz
R56 1/4W10
R57 1/4W10
R41 5.6K
R40 10K
R39 27K
R38 1K
R37 1K
D3
C41 6V330
C40 25V33
C39 25V33
C38 25V33
C62 0.047
C63 0.047
C37 6V330
R58 1/4W4.7
C61 6V330
C58 6V330
C60 0.047
IC19-1
IC19-2
Divider
R48 47K
C49 470P
C48 33P
C45 220P
C46 0.0015
L1 18μH
C47 220P
D1
R47 47K
IC20-2
IC20-1
R55 47K
C57 470P
C56 33P
C53 220P
C54 0.0015
L2 18μH
C55 220P
D2
R54 47K
R46 3.3K
C44 0.047
R45 100
R53 3.3K
C52 0.047
R52 100
IC21-1
IC21-2
C42 0.22
C43 0.1
C50 0.22
C51 0.1
R44 100K
R43 100K
R42 220K
R60 2.2K
VR1 2K
R51 100K
R50 100K
R49 220K
R61 2.2K
VR2 2K
Tab Master Clock Oscillator (2MHz)
Mono-Tone Master Clock Oscillator (2MHz)
IC3-1
C6 0.001
R6 4.7K
IC3-2
C5 0.001
R5 4.7K
IC2-1
C4 0.001
R4 4.7K
IC2-2
C3 0.001
R3 4.7K
IC1-1
C2 0.001
R2 4.7K
IC6-1
C12 0.001
R12 4.7K
IC6-2
C11 0.001
R11 4.7K
IC5-1
C10 0.001
R10 4.7K
IC5-2
C9 0.001
R9 4.7K
IC4-1
C8 0.001
R8 4.7K
IC4-2
C7 0.001
R7 4.7K
IC9-1
C18 0.001
R18 4.7K
IC9-2
C17 0.001
R17 4.7K
IC8-1
C16 0.001
R16 4.7K
IC8-2
C15 0.001
R15 4.7K
IC7-1
C14 0.001
R14 4.7K
IC7-2
C13 0.001
R13 4.7K
IC12-1
C24 0.001
R24 4.7K
IC12-2
C23 0.001
R23 4.7K
IC11-1
C22 0.001
R22 4.7K
IC11-2
C21 0.001
R21 4.7K
IC10-1
C20 0.001
R20 4.7K
IC10-2
C19 0.001
R19 4.7K
IC13-1
C26 0.001
R26 4.7K
IC13-2
C25 0.001
R25 4.7K
Lower TG Output Buffer
Upper TG Output Buffer
Output Buffer Block
OUT
IN
IC1
IC2
OPB -15
OPB +15
Mono-Tone Master Clock (2MHz)
Tab Master Clock (2MHz)
CN11
E
L4
L8
L16
LF7
LF6
LF5
LF4
LF3
LF2
LF1
OPB
CN10
OR4
OR8
OR16
PT7
PT6
PT5
PT4
PT3
PT2
UF7
UF6
UF5
CN9
UF4
UF3
UF2
UF1
P4
CN8
+5
-15
MTMC
MC
CN7
RND2
RND1
RND0
MTO3
MKO3
MTO2
MKO2
MTO1
MKO1
MTO0
MKO0
MK00 (63)
MT00 (62)
MT01 (64)
MT02 (61)
MT03 (60)
RND0 (66)
RND1 (68)
RND2 (67)
MCTC (59)
MCMC (57)
SPS (CLK)
BAS (CLK)
ACC (MT02)
ACC (MT03)
PCT (RND1)
SAS (MCTC)
SAS (MCMC)
TGM
LOWER TG IC7
UPPER TG IC4
UPPER QUINT TG IC5
TOP OCTAVE SYNTHE IC3
DWR
from SAS
(DATA BUS, ADDRESS BUS)

NOTES:

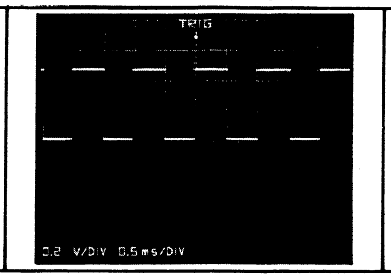
- IC'S
  - IC1~13, 21: SVIGM5218L (SVIGNJM4558S)
  - IC19: SVIGTC40H393
  - IC20: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5VT
  - D3: SVDGEK13
- COILS
  - L1, 2: ELQS180KB

TONE GENERATOR CIRCUIT BOARD (TG)

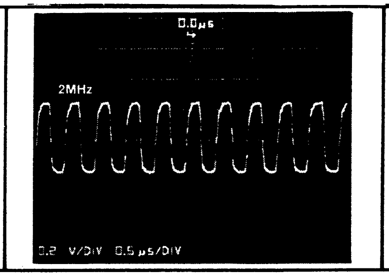
❶ Tab Master Clock Control



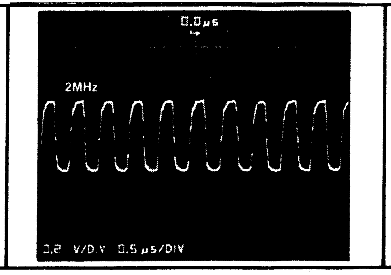
❷ Mono-Tone Master Clock Control



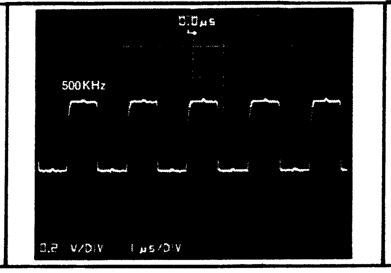
❸ Tab Master Clock



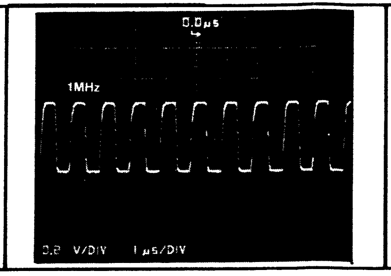
❹ Mono-Tone Master Clock



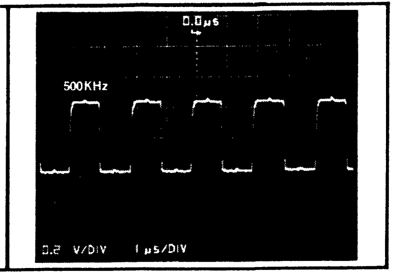
❺ Tab Clock (500KHz)

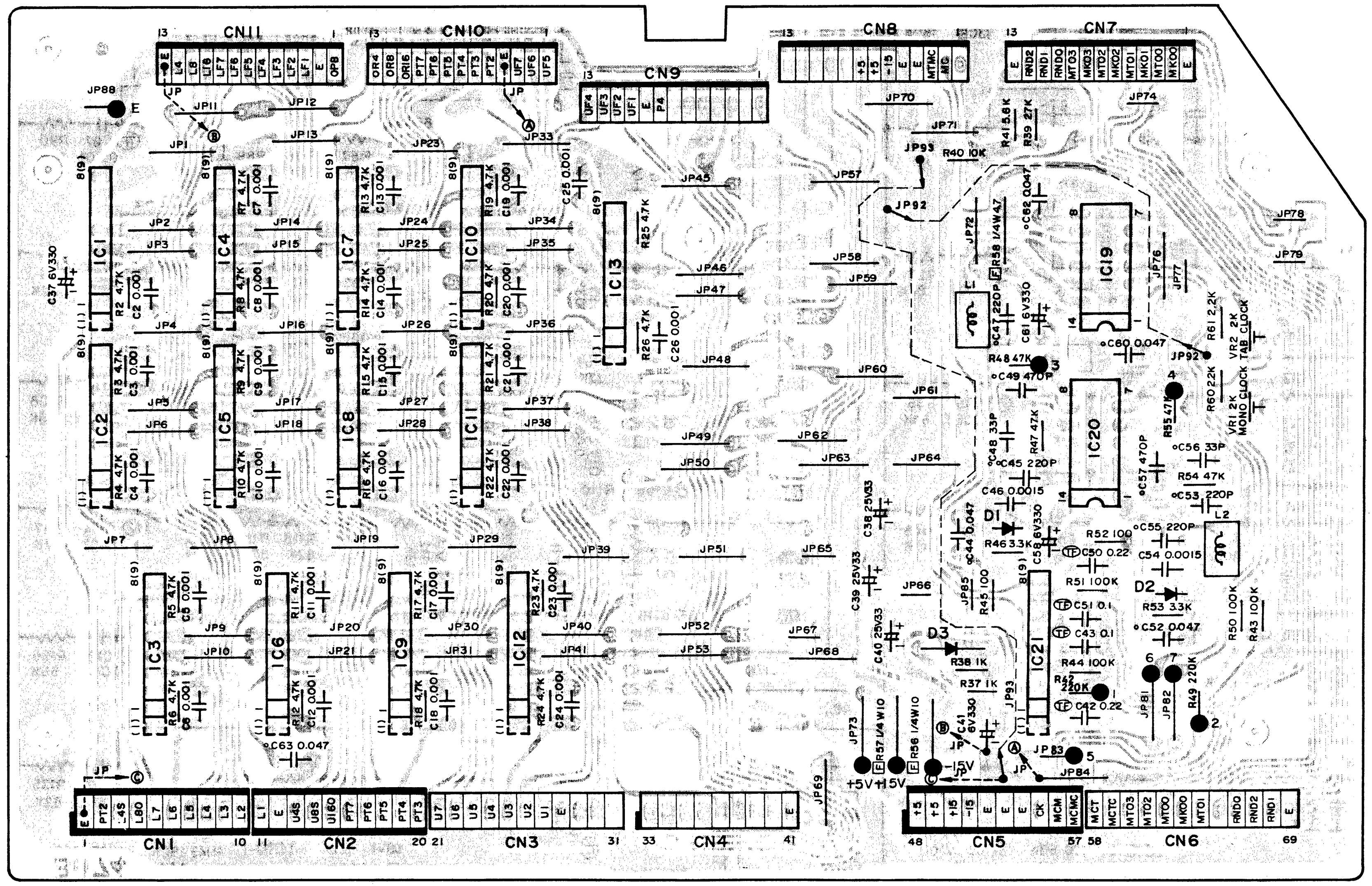


❻ 1MHz Clock



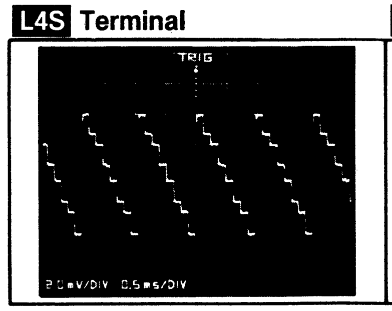
❼ Mono-Tone Clock (500KHz)




CN11
CN10
CN9
CN8
CN7
CN1
CN2
CN3
CN4
CN5
CN6
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC19
IC20
IC21
JP88
E
L4
L8
L16
LF7
LF6
LF5
LF4
LF3
LF2
LF1
OP8
OR4
OR8
OR16
PT7
PT6
PT5
PT4
PT3
PT2
UF7
UF6
UF5
UF4
UF3
UF2
UF1
P4
+5
-15
MTMC
MC
RND2
RND1
RND0
MTO3
MKO3
MTO2
MKO2
MTO1
MKO1
MTO0
MKO0
L4S
L8O
L7
L6
L5
L3
L2
L1
U4S
U8S
U16O
U7
U6
U5
U4
U3
U2
U1
CK
MCM
MCMC
MCT
MCTC
D1
D2
D3
L1
L2
R48 47K
R55 47K
R60 22K
R61 2.2K
VR1 2K MONO CLOCK
VR2 2K TAB CLOCK
R40 10K
R41 5.6K
R39 27K
R58 1/4W47
R57 1/4W10
R56 1/4W10
+5V
+15V
-15V
C37 6V330
C63 0.047
SXPGB11742

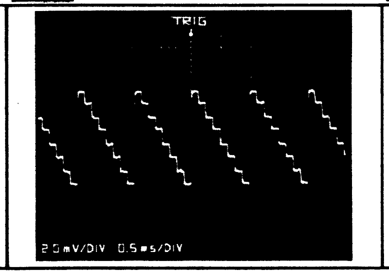
SXPGB11742

L4S Terminal



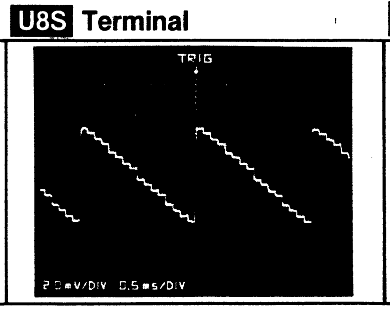
- Lower Key..............................C4

U4S Terminal



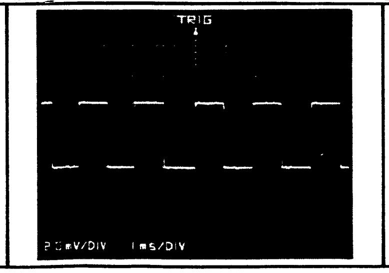
- Upper Key..............................C4

U8S Terminal



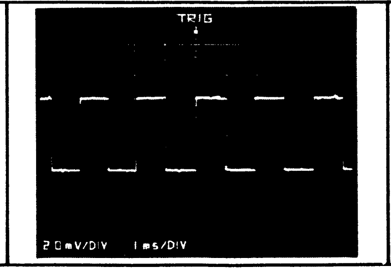
- Upper Key..............................C4

U4 Terminal (U1 ~ U7)



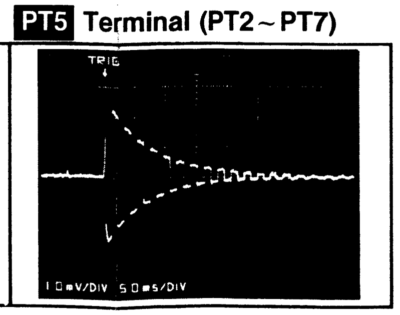
- Upper Tab..............................Flute 8′
- Upper Key..............................C4

L4 Terminal (L1 ~ L7)



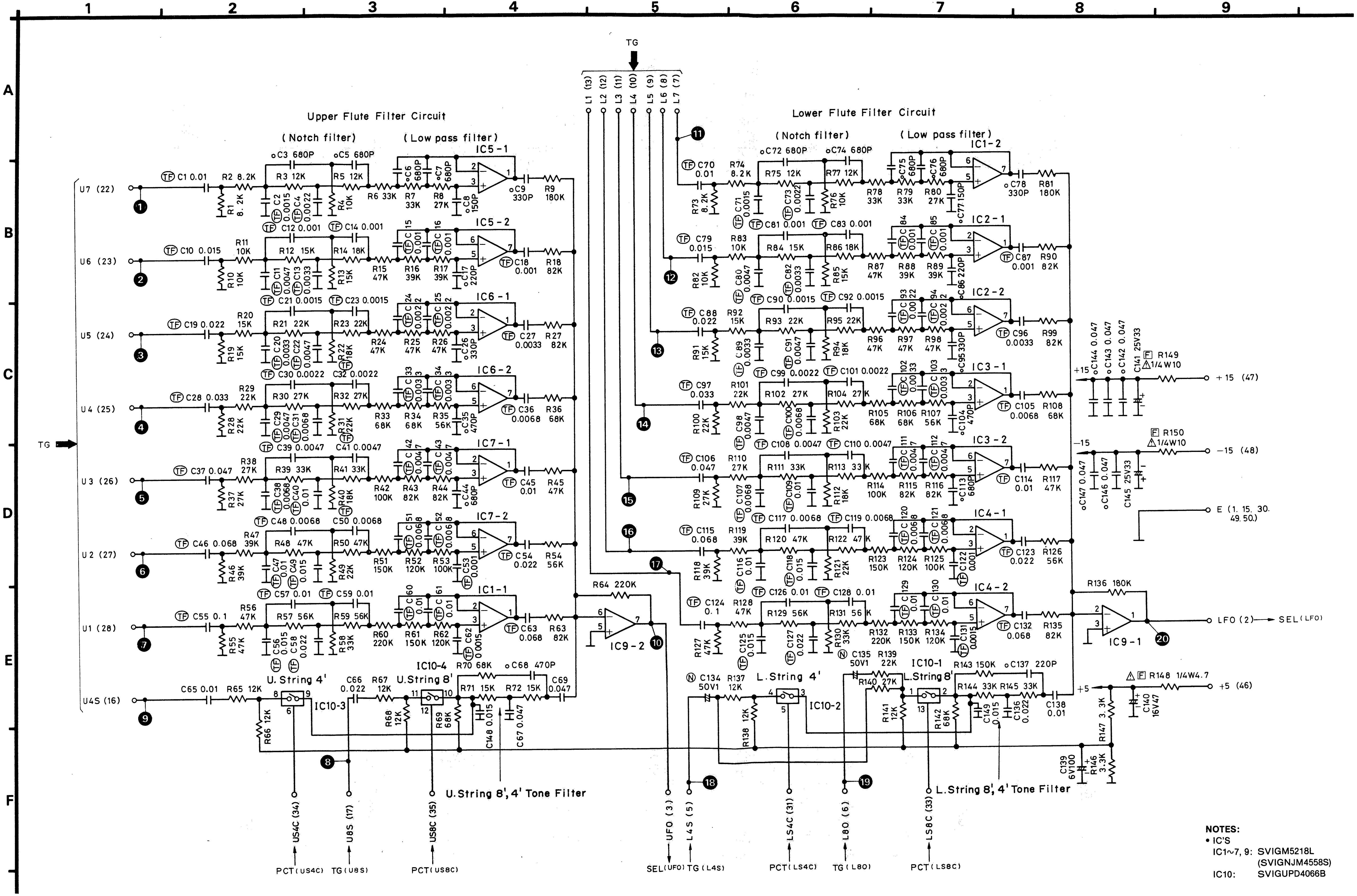
- Lower Tab..............................Flute 8′
- Lower Key..............................C4

PT5 Terminal (PT2 ~ PT7)



- Percussive Tone...................4′
- Upper Key..............................C4

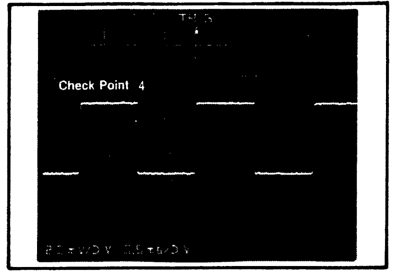
ORGAN CIRCUIT DIAGRAM (ORG)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TG
L1 (13)
L2 (12)
L3 (11)
L4 (10)
L5 (9)
L6 (8)
L7 (7)
Upper Flute Filter Circuit
(Notch filter)
(Low pass filter)
Lower Flute Filter Circuit
(Notch filter)
(Low pass filter)
U7 (22)
U6 (23)
U5 (24)
U4 (25)
U3 (26)
U2 (27)
U1 (28)
U4S (16)
TG
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC1-1
IC9-2
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
IC9-1
IC10-4
IC10-3
IC10-1
IC10-2
R64 220K
R136 180K
U. String 4'
U.String 8'
L.String 4'
L.String 8'
U.String 8', 4' Tone Filter
L.String 8', 4' Tone Filter
+15 (47)
−15 (48)
E (1. 15. 30. 49. 50.)
LFO (2) → SEL(LFO)
+5 (46)
R148 1/4W4.7
R149 1/4W10
R150 1/4W10
US4C (34)
U8S (17)
US8C (35)
UFO (3)
L4S (5)
LS4C (31)
L8O (6)
LS8C (33)
PCT(US4C)
TG(U8S)
PCT(US8C)
SEL(UFO)
TG(L4S)
PCT(LS4C)
TG(L8O)
PCT(LS8C)

NOTES:
- IC'S
  IC1~7, 9: SVIGM5218L
  (SVIGNJM4558S)
  IC10: SVIGUPD4066B

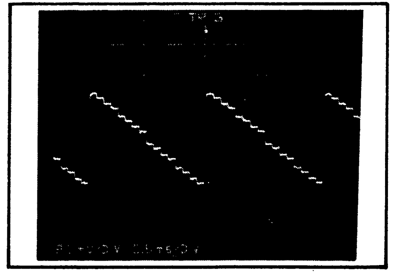
ORGAN CIRCUIT BOARD (ORG)

❶,❷,❸,❹,❺,❻,❼



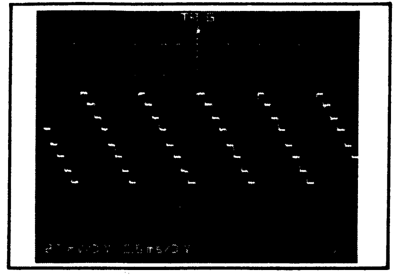
- Upper Tab............................Flute 8′
- Upper Key............................C4

❽



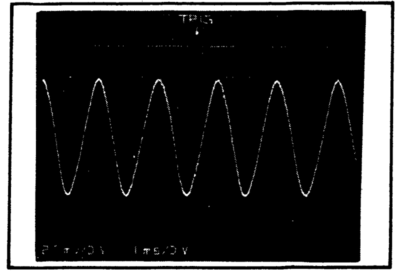
- Upper Tab............................String 8′
- Upper Key............................C4

❾

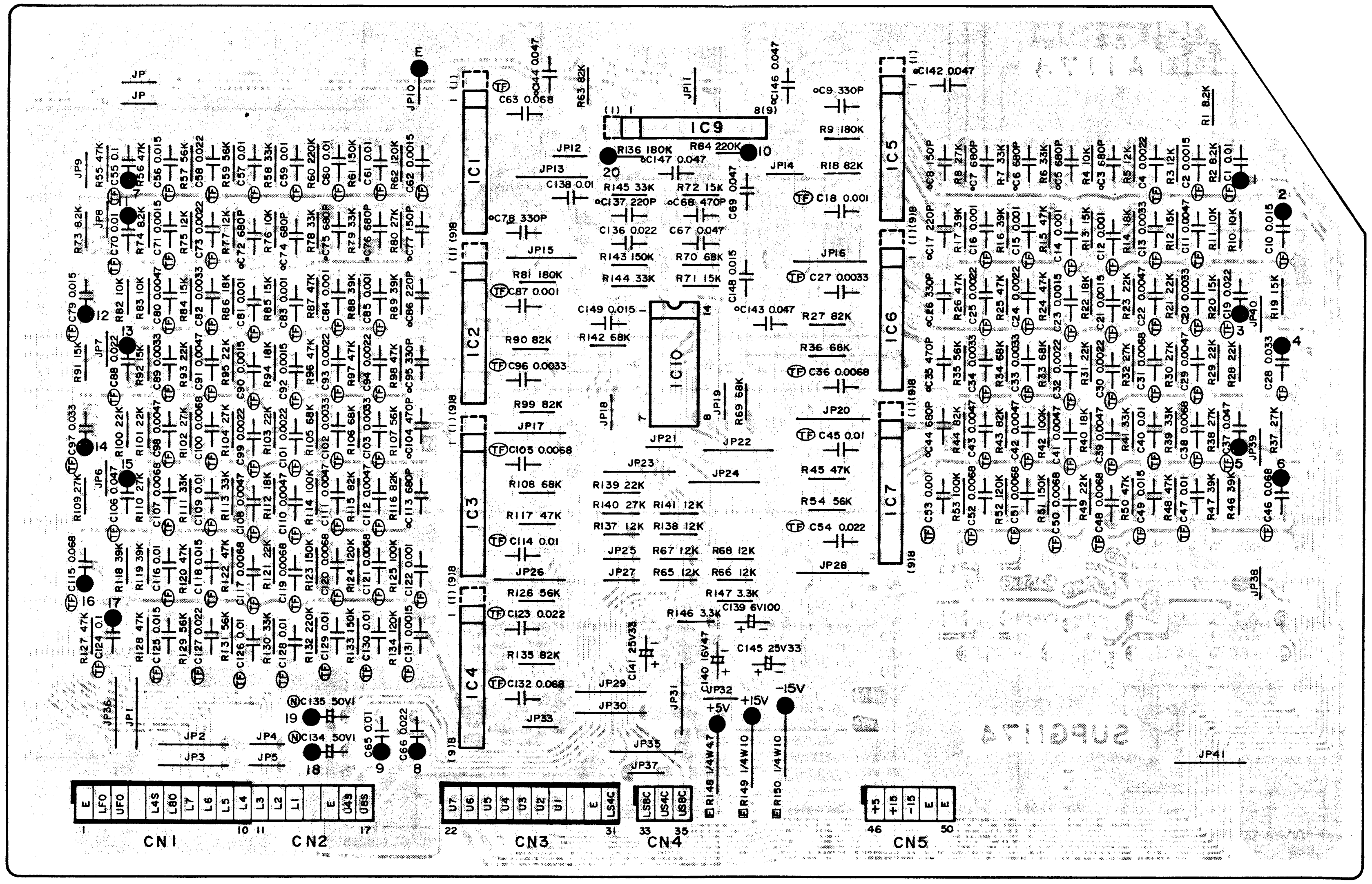


- Upper Tab............................String 4′
- Upper Key............................C4

❿

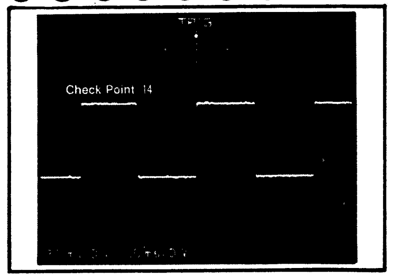


- Upper Tab............................Flute 8′
- Upper Key............................C4


IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC9
IC10
CN1
CN2
CN3
CN4
CN5
E
+5V
+15V
-15V
JP1
JP2
JP3
JP4
JP5
JP10
JP11
JP12
JP13
JP14
JP15
JP16
JP17
JP20
JP21
JP22
JP23
JP24
JP25
JP26
JP27
JP28
JP29
JP30
JP31
JP33
JP35
JP37
JP41
C135 50V1
C134 50V1
C141 25V33
C145 25V33
C139 6V100
R148 1/4W47
R149 1/4W10
R150 1/4W10
LFO
UFO
L4S
L8O
L7
L6
L5
L4
L3
L2
L1
U4S
U8S
U7
U6
U5
U4
U3
U2
U1
LS4C
LS8C
US4C
US8C
+5
+15
-15
SUPG11174

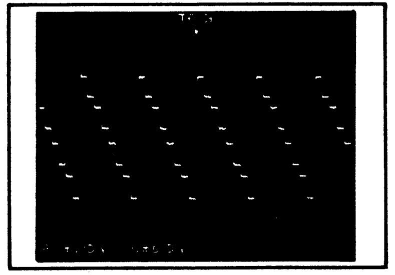
SXPGA11742

⓫,⓬,⓭,⓮,⓯,⓰,⓱



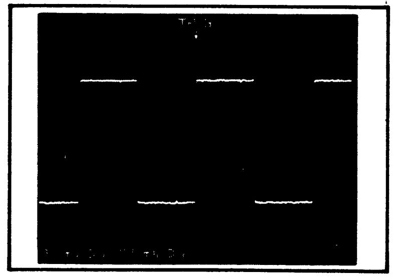
- Lower Tab............................Flute 8′
- Lower Key............................C4

⓲



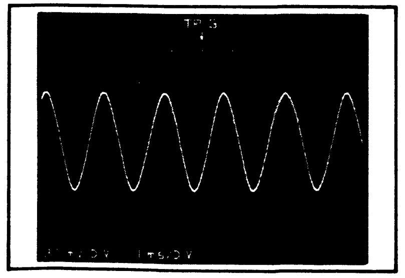
- Lower Tab............................String 4′
- Lower Key............................C4

⓳



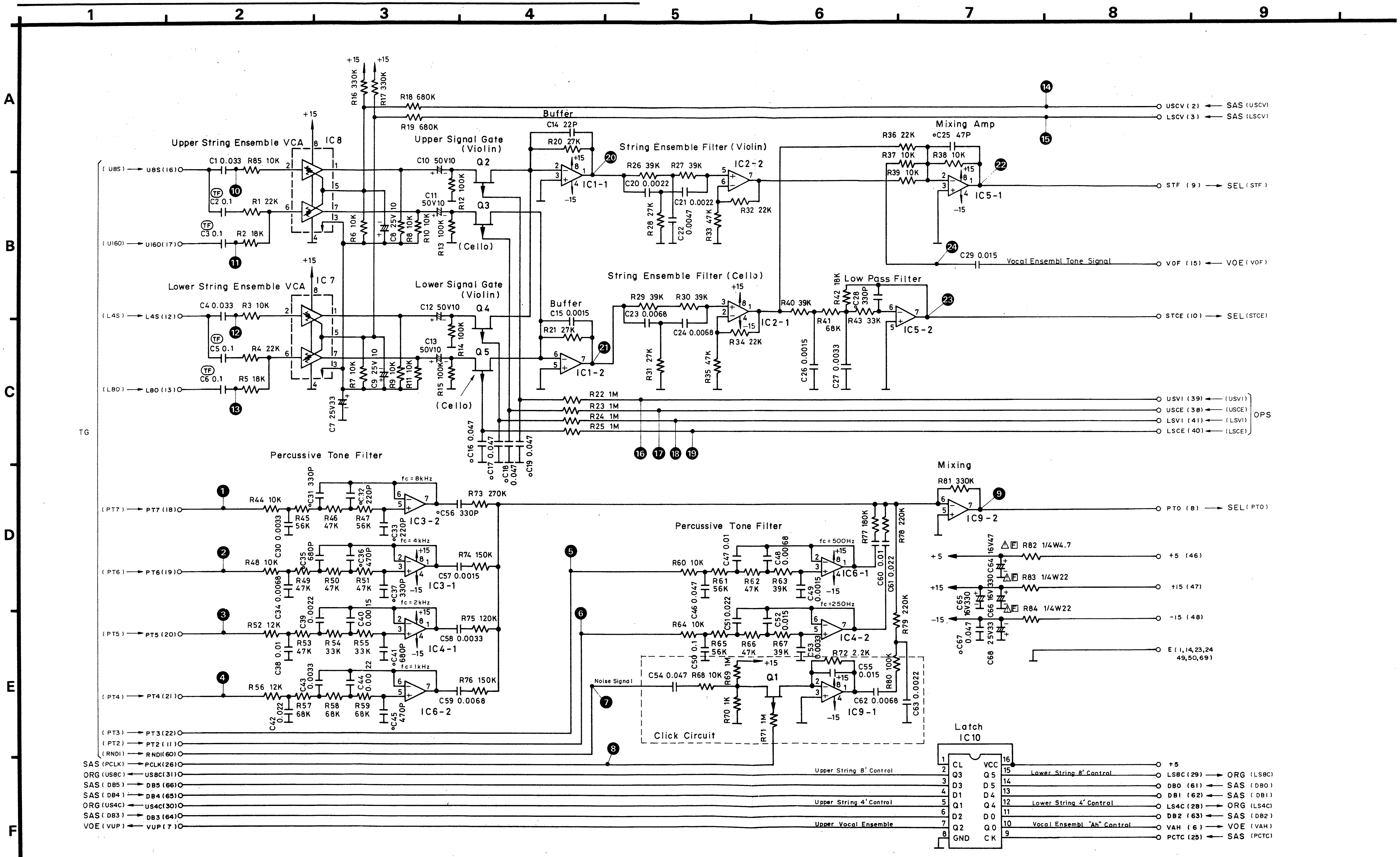
- Lower Tab............................String 8′
- Lower Key............................C4

⓴



- Lower Tab............................Flute 8′
- Lower Key............................C4

PERCUSSIVE TONE CIRCUIT DIAGRAM (PCT)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Upper String Ensemble VCA
IC8
Lower String Ensemble VCA
IC7
Upper Signal Gate (Violin)
Lower Signal Gate (Violin)
(Cello)
Q2
Q3
Q4
Q5
Buffer
IC1-1
IC1-2
String Ensemble Filter (Violin)
IC2-2
String Ensemble Filter (Cello)
IC2-1
Mixing Amp
IC5-1
Low Pass Filter
IC5-2
R16 330K
R17 330K
R18 680K
R19 680K
C14 22P
R20 27K
C15 0.0015
R21 27K
R26 39K
R27 39K
C20 0.0022
C21 0.0022
R28 27K
C22 0.0047
R33 47K
R32 22K
R29 39K
R30 39K
C23 0.0068
C24 0.0068
R31 27K
R35 47K
R34 22K
R36 22K
C25 47P
R37 10K
R38 10K
R39 10K
C29 0.015
Vocal Ensembl Tone Signal
R40 39K
R41 68K
R42 18K
C28 330P
R43 33K
C26 0.0015
C27 0.0033
C1 0.033
R85 10K
C2 0.1
R1 22K
C3 0.1
R2 18K
C4 0.033
R3 10K
C5 0.1
R4 22K
C6 0.1
R5 18K
C7 25V33
R6 10K
C8 25V10
R8 10K
R10 10K
R13 100K
C10 50V10
C11 50V10
R12 100K
R7 10K
C9 25V10
R9 10K
R11 10K
R15 100K
C12 50V10
C13 50V10
R14 100K
R22 1M
R23 1M
R24 1M
R25 1M
C16 0.047
C17 0.047
C18 0.047
C19 0.047
TF
+15
-15
(U8S) → U8S (16)
(U16O) → U16O (17)
(L4S) → L4S (12)
(L8O) → L8O (13)
TG
USCV (2) ← SAS (USCV)
LSCV (3) ← SAS (LSCV)
STF (9) → SEL (STF)
VOF (15) ← VOE (VOF)
STCE (10) → SEL (STCE)
USVI (39) ← (USVI)
USCE (38) ← (USCE)
LSVI (41) ← (LSVI)
LSCE (40) ← (LSCE)
OPS
Percussive Tone Filter
fc=8kHz
fc=4kHz
fc=2kHz
fc=1kHz
fc=500Hz
fc=250Hz
R44 10K
C31 330P
C32 220P
R45 56K
R46 47K
R47 56K
C30 0.0033
C33 220P
IC3-2
C56 330P
R73 270K
R48 10K
C35 680P
C36 470P
R49 47K
R50 47K
R51 47K
C34 0.0068
C37 330P
IC3-1
R74 150K
C57 0.0015
R52 12K
C39 0.0022
C40 0.0015
R53 47K
R54 33K
R55 33K
C38 0.01
C41 680P
IC4-1
R75 120K
C58 0.0033
R56 12K
C43 0.0033
C44 0.0022
R57 68K
R58 68K
R59 68K
C42 0.022
C45 470P
IC6-2
R76 150K
C59 0.0068
(PT7) → PT7 (18)
(PT6) → PT6 (19)
(PT5) → PT5 (20)
(PT4) → PT4 (21)
(PT3) → PT3 (22)
(PT2) → PT2 (11)
(RNDI) → RNDI (60)
SAS (PCLK) → PCLK (26)
ORG (US8C) ← US8C (31)
SAS (DB5) → DB5 (66)
SAS (DB4) → DB4 (65)
ORG (US4C) ← US4C (30)
SAS (DB3) → DB3 (64)
VOE (VUP) ← VUP (7)
Noise Signal
R60 10K
C47 0.01
C48 0.0068
R61 56K
R62 47K
R63 39K
C46 0.047
C49 0.0015
IC6-1
R64 10K
C51 0.022
C52 0.015
R65 56K
R66 47K
R67 39K
C50 0.1
C53 0.0033
IC4-2
R77 180K
R78 220K
C60 0.01
C61 0.022
R79 220K
C54 0.047
R68 10K
R69 1M
R70 1K
R71 1M
Q1
R72 2.2K
C55 0.015
IC9-1
C62 0.0068
R80 100K
C63 0.0022
Click Circuit
Mixing
R81 330K
IC9-2
PTO (8) → SEL (PTO)
R82 1/4W4.7
R83 1/4W22
R84 1/4W22
C64 16V47
C65 16V330
C66 16V330
C67 0.047
C68 25V33
+5
+15
-15
+5 (46)
+15 (47)
-15 (48)
E (1,14,23,24 49,50,69)
Latch IC10
CL
Q3
D3
D1
Q1
D2
Q2
GND
VCC
Q5
D5
D4
Q4
D0
Q0
CK
Upper String 8' Control
Upper String 4' Control
Upper Vocal Ensemble
Lower String 8' Control
Lower String 4' Control
Vocal Ensembl "Ah" Control
+5
LS8C (29) → ORG (LS8C)
DB0 (61) ← SAS (DB0)
DB1 (62) ← SAS (DB1)
LS4C (28) → ORG (LS4C)
DB2 (63) ← SAS (DB2)
VAH (6) → VOE (VAH)
PCTC (25) ← SAS (PCTC)
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔

NOTES:

- IC'S
  - IC1~6, 9: SVIGM5218L (SVIGNJM4558S)
  - IC7, 8: SVIGM5222L
  - IC10: SVIGTC40174B

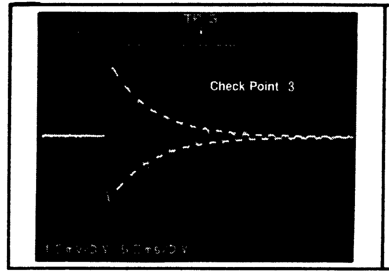
- TRANSISTORS
  - Q1~5: 2SJ40CD

PERCUSSIVE TONE CIRCUIT BOARD (PCT)

1 2 3 4 5 6 7 8 9

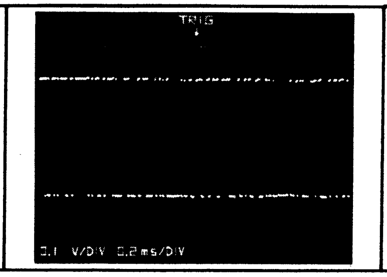
A B C D E F

❶~❻



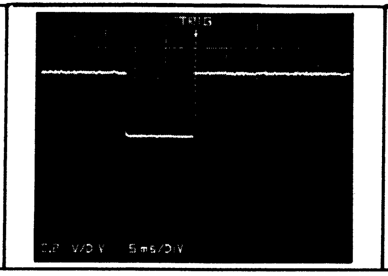
- Percussive Tone....................4'
- Upper Key..............................C4

❼ **Noise Signal**



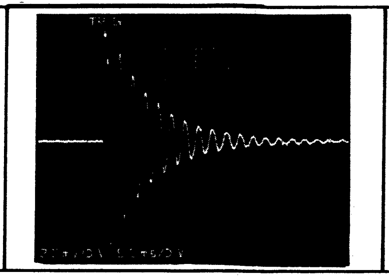
- Click Noise

❽ **Click Gate Pulse**



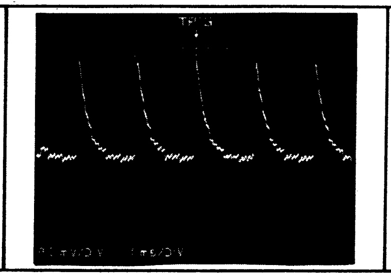
- Click Tab..............................ON
- Upper Key..............................ON

❾ **Percussive Tone**



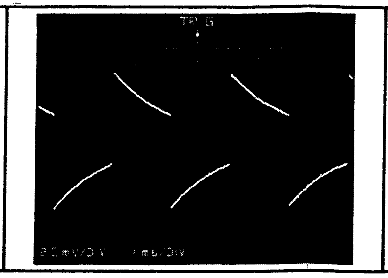
- Percussive Tone....................4'
- Upper Key..............................C4

❿



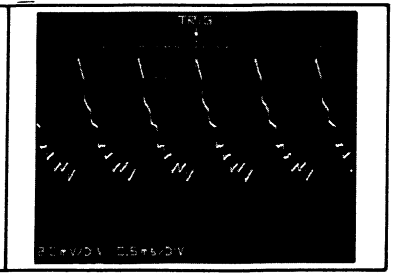
- U. String Ensemble
- Upper Key..............................ON

⓫



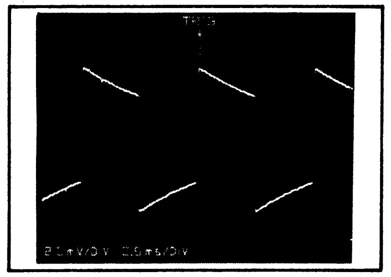
- Upper String Ensemble
- Upper Key......................C4

⓬



Lower String Ensemble
- Lower Key......................C4

⓭

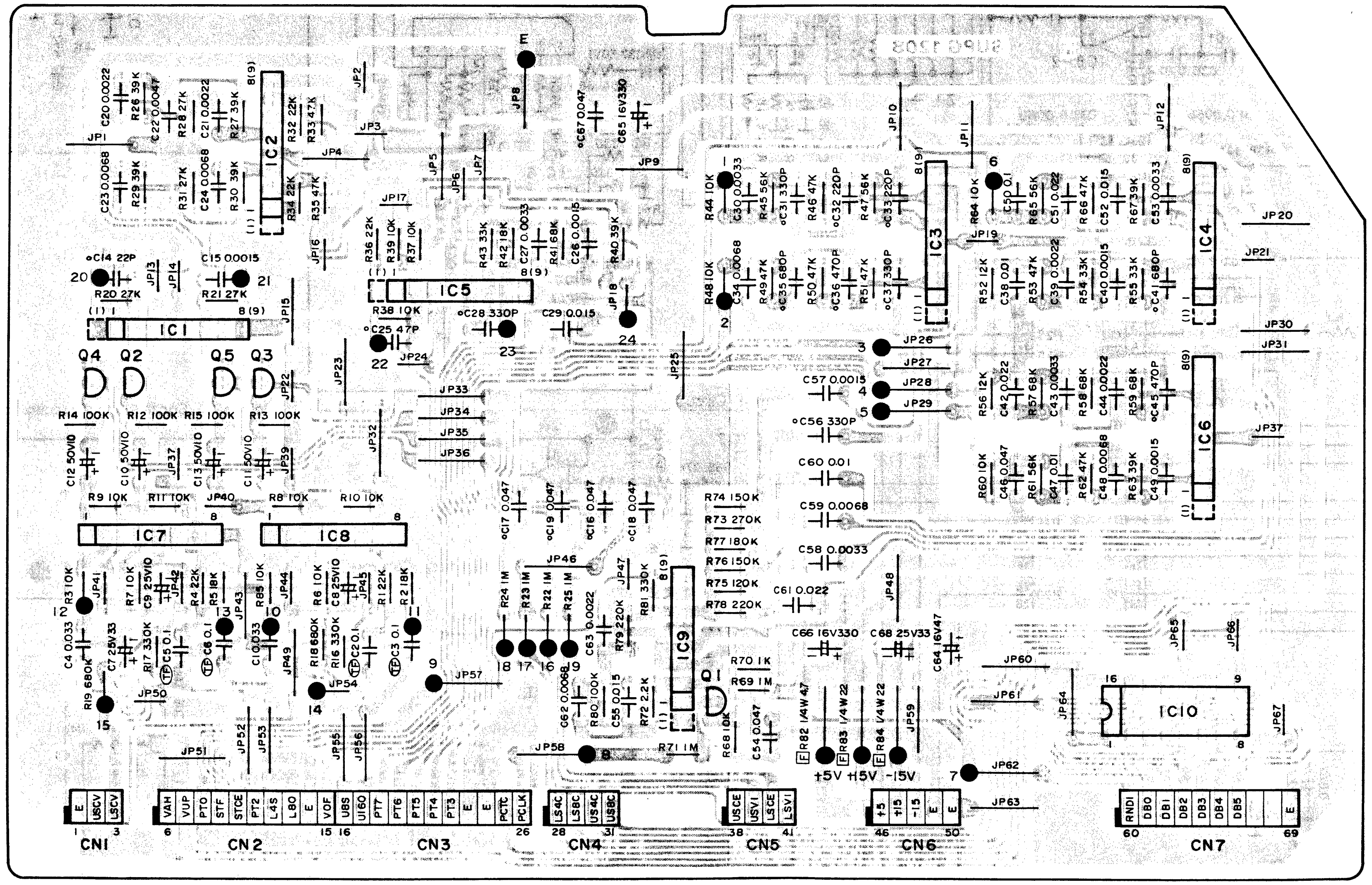


- Lower String Ensemble
- Lower Key......................ON

⓮, ⓯

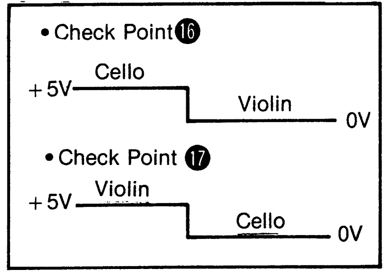
U&L String Ensemble
- Volume Control

Step 1.................... – 10.3V
Step 2.................... – 8.6V
Step 3.................... – 6.4V
Step 4....................0V

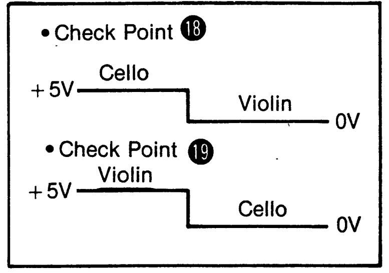

IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
Q1
Q2
Q3
Q4
Q5
CN1
CN2
CN3
CN4
CN5
CN6
CN7
+5V
+15V
-15V
E

SXPG12081

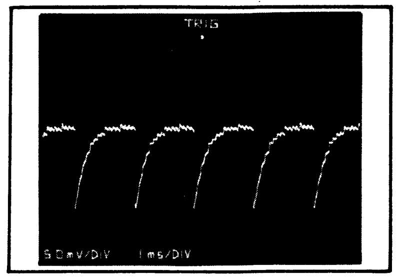
⓰, ⓱ **U. String Ensemble**


• Check Point ⓰
+5V
Cello
Violin
0V
• Check Point ⓱
+5V
Violin
Cello
0V

⓲, ⓳ **L. String Ensemble**

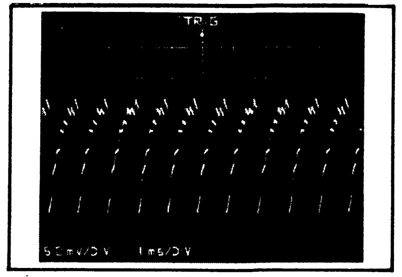

• Check Point ⓲
+5V
Cello
Violin
0V
• Check Point ⓳
+5V
Violin
Cello
0V

⓴ **U. String Ensemble: Violin**



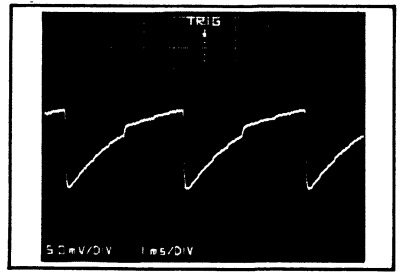
- U. String Ensemble Vol........max
- Upper Key..............................C4

⓴ **L. String Ensemble: Violin**



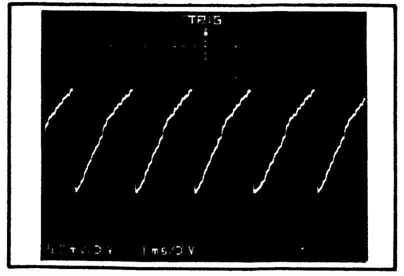
- L. String Ensemble Vol........max
- Lower Key..............................C4

(21) **U. String Ensemble: Cello**



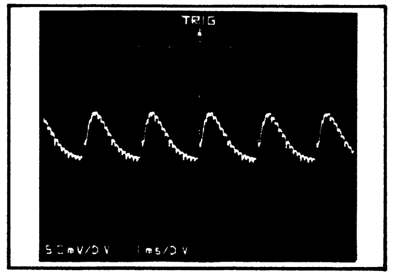
- U. String Ensemble Vol........max
- Upper Key..............................C4

(21) **L. String Ensemble: Cello**



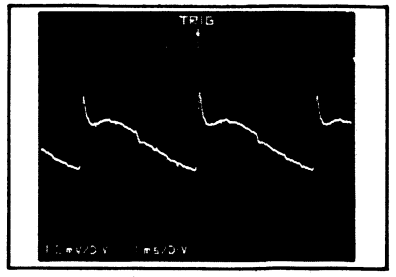
- L. String Ensemble Vol........max
- Lower Key..............................C4

(22) **U. String Ensemble: Violin**



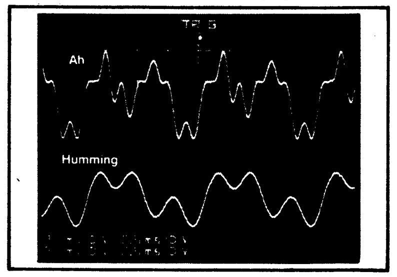
- U. String Ensemble Vol........max
- Upper Key..............................C4

(23) **U. String Ensemble: Cello**



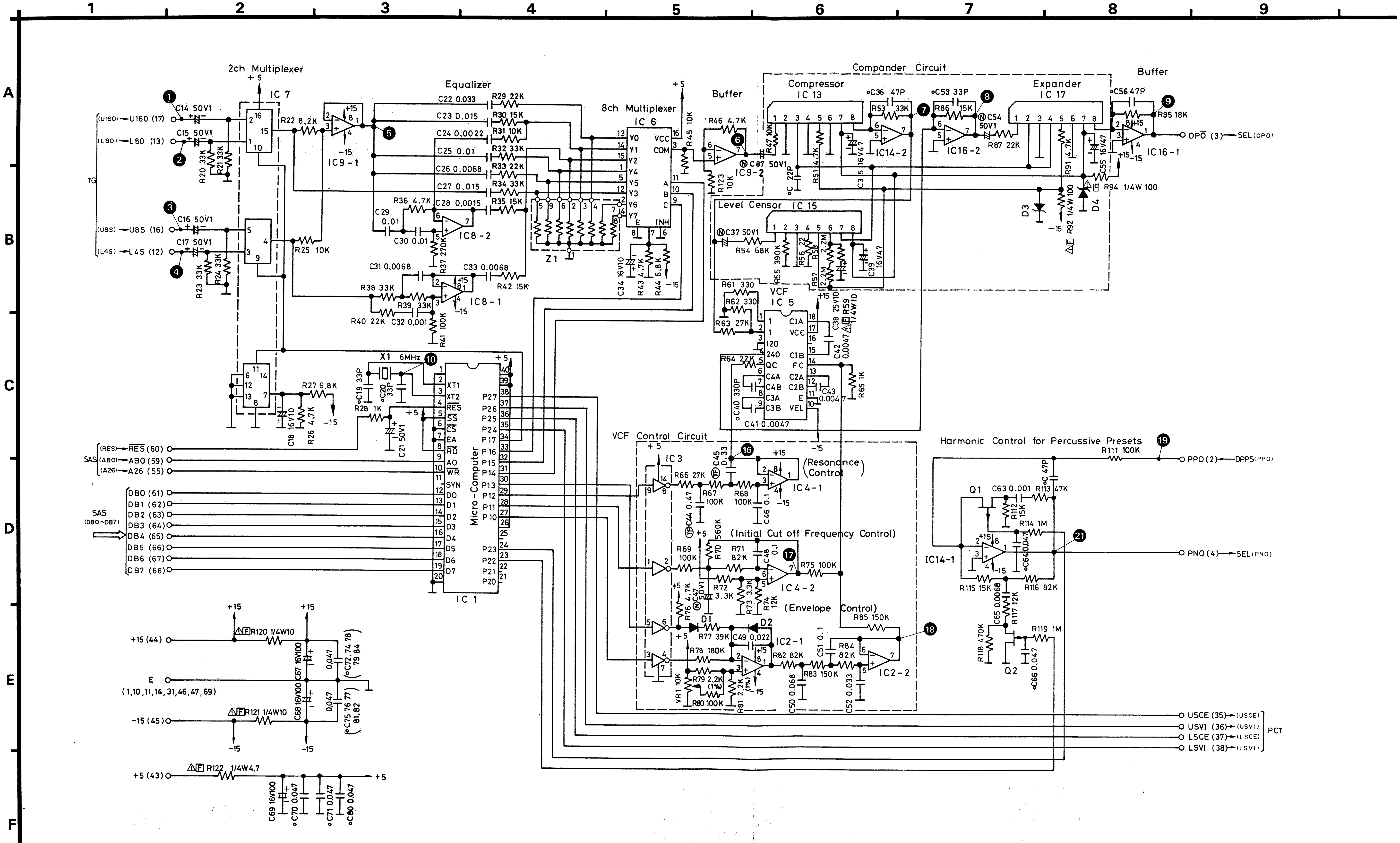
- U. String Ensemble Vol........max
- Upper Key..............................C4

(24) **U. Vocal Ensemble**



- Vocal Ensemble Vol............max
- Upper Key..............................C4

ORCHESTRAL PRESETS CIRCUIT DIAGRAM (OPS)

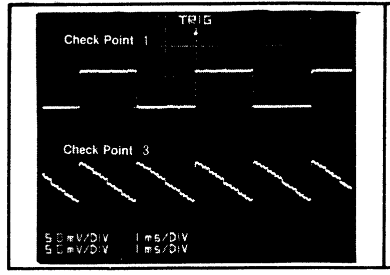

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
2ch Multiplexer
IC 7
Equalizer
8ch Multiplexer
IC 6
Buffer
Compander Circuit
Compressor
IC 13
Expander
IC 17
Buffer
IC9-1
IC9-2
IC8-2
IC8-1
IC14-2
IC16-2
IC16-1
Z1
Level Censor IC 15
VCF
IC 5
X1 6MHz
Micro-Computer
IC 1
VCF Control Circuit
IC3
IC4-1
IC4-2
IC2-1
IC2-2
(Resonance Control)
(Initial Cut off Frequency Control)
(Envelope Control)
Harmonic Control for Percussive Presets
IC14-1
Q1
Q2
D1
D2
D3
D4
TG
(U160)→U160 (17)
(L80)→L80 (13)
(U8S)→U8S (16)
(L4S)→L4S (12)
OPO (3)→SEL(OPO)
PPO (2)→DPPS(PPO)
PNO (4)→SEL(PNO)
SAS
(RES)→RES (60)
(A80)→A80 (59)
(A26)→A26 (55)
SAS (DB0~DB7)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
USCE (35)→(USCE)
USVI (36)→(USVI)
LSCE (37)→(LSCE)
LSVI (38)→(LSVI)
PCT
+15 (44)
E (1,10,11,14,31,46,47,69)
-15 (45)
+5 (43)
R120 1/4W10
R121 1/4W10
R122 1/4W4.7
C67 16V100
C68 16V100
C69 16V100
C72, 74 78, 79 84
C75 76 77, 81, 82
C70 0.047
C71 0.047
C80 0.047
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑯
⑰
⑱
⑲
㉑

NOTES:

- TRANSISTORS
  - Q1, 2: 2SJ40CD
- DIODES
  - D1, 2: MA165TA5VT
  - D3, 4: MA1120M
- IC'S
  - IC1: SVIG8041145
  - IC2: SVIGNJM082D
  - IC3: SVIGTC40H004
  - IC4, 8, 9, 14, 16: SVIGM5218L (SVIGNJM4558S)
  - IC5: SVIGBA6704
  - IC6: SVIGHD14051B
  - IC7: SVIGTC4053BP
  - IC13, 17: SVIGUPC1252H
  - IC15: SVIGUPC1253H
- COMPONENTS COMBINATIONS
  - Z1: EXBP88334MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA600MT

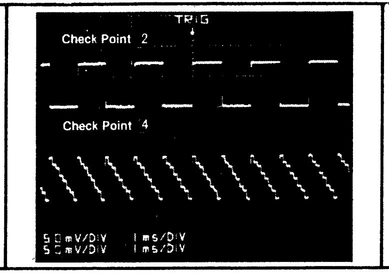
ORCHESTRAL PRESETS CIRCUIT BOARD (OPS)

❶, ❸



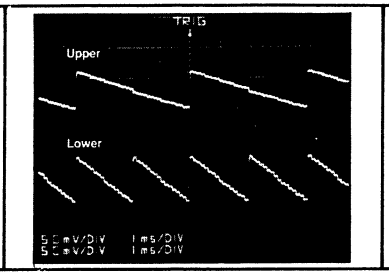
- U. Orchestral Presets
- Upper Key......................C4

❷, ❹



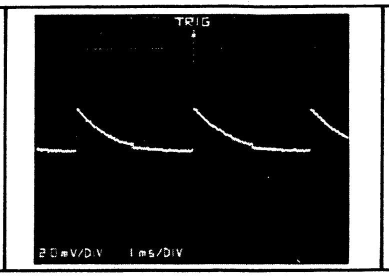
- L. Orchestral Presets
- Lower Key......................C4

❺



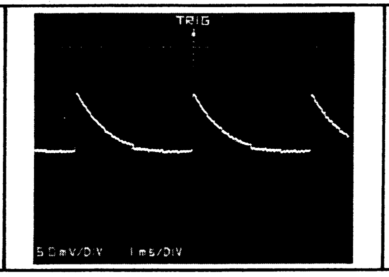
- U&L Orchestral Presets
- Upper or Lower Key.............C4

❻



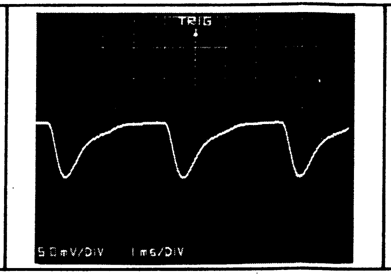
- Upper Orchestral Presets...Trombone
- Upper Key..............................C4

❼



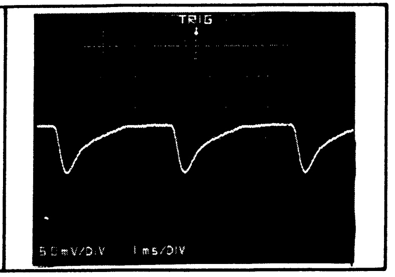
- Upper Orchestral Presets...Trombone
- Upper Key..............................C4

❽



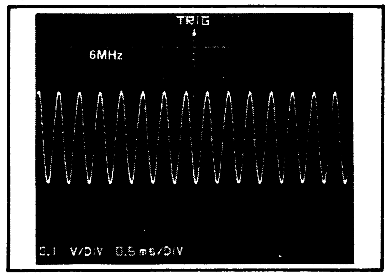
- Upper Orchestral Presets...Trombone
- Harmonic Control................Center
- Upper Key..............................C4

❾



- Upper Orchestral Presets...Trombone
- Harmonic Control................Center
- Upper Key..............................C4

❿



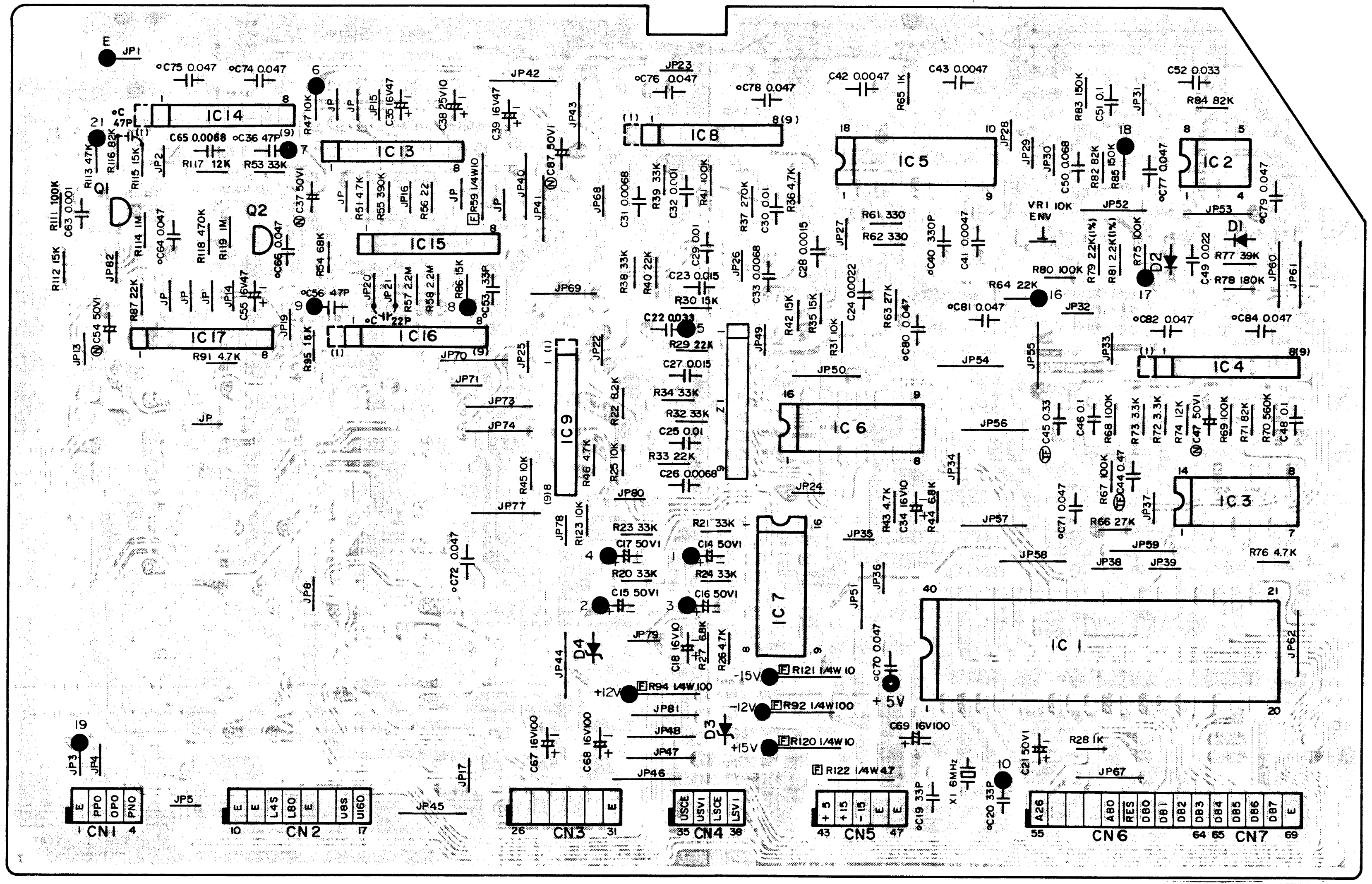
⓰ Resonance Control

• Trumpet	1.1V
• French horn	0V
• Accordion	0.56V
• Synthe brass	0.82V
• Trombone	1.1V
• Saxophone	0V
• Clarinet	0.56V
• Wah brass	1.88V

⓱ Initial Cut-off Frequency Control

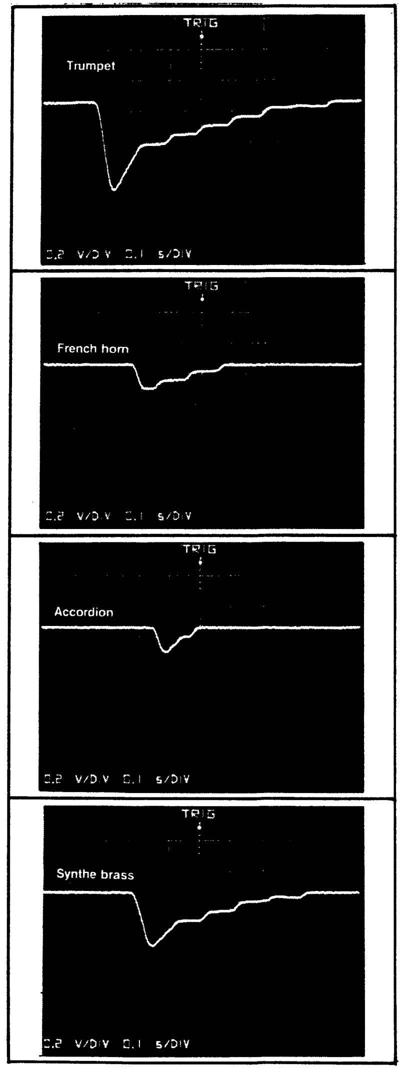
*Harmonic Control: Center

• Trumpet	– 4.1V
• French horn	– 4.1V
• Accordion	– 9.66V
• Synthe brass	– 9.69V
• Trombone	– 3.72V
• Saxophone	– 9.29V
• Clarinet	– 5.95V
• Wah brass	– 9.98V


E JP1
IC14
IC13
IC8
IC5
IC2
IC15
IC17
IC16
IC4
IC9
IC6
IC3
IC7
IC1
Q1
Q2
D1
D2
D3
D4
VR1 10K ENV
X1 6MHz
+12V
-12V
+15V
-15V
+5V
CN1
CN2
CN3
CN4
CN5
CN6
CN7

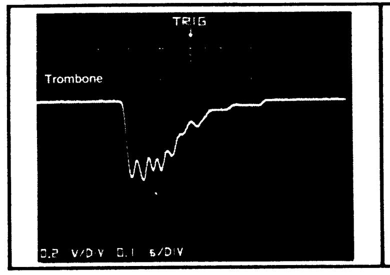
SXPGA12091

⓲ Envelope Control



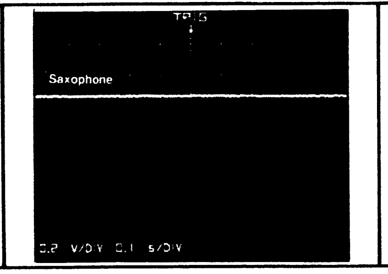
- Harmonic Control................Center
- Upper Key..............................C4

⓲ Envelope Control



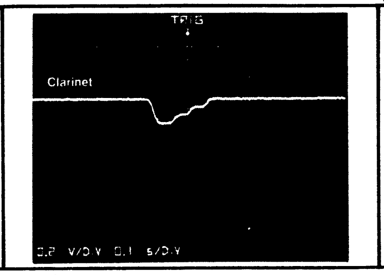
- Trombone
- Harmonic Control................Center
- Upper Key..............................C4

⓲ Envelope Control



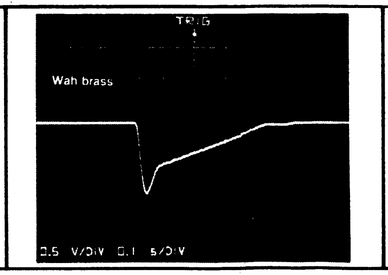
- Saxophone
- Harmonic Control................Center
- Upper Key..............................C4

⓲ Envelope Control



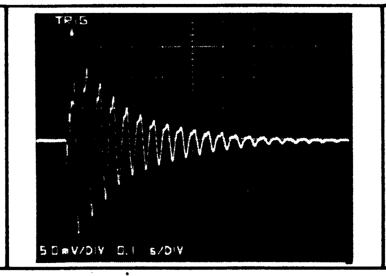
- Clarinet
- Harmonic Control................Center
- Upper Key..............................C4

⓲ Envelop Control



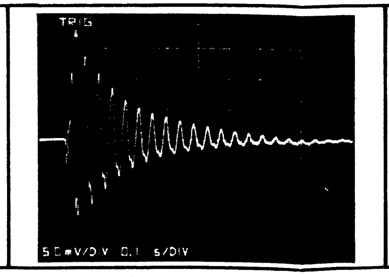
- Wah brass
- Harmonic Control................Center
- Upper Key..............................C4

⓳ Percussive Presets



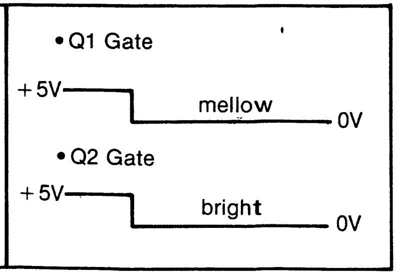
- Acoustic Piano
- Upper Key......................C4

㉑ Percussive Presets

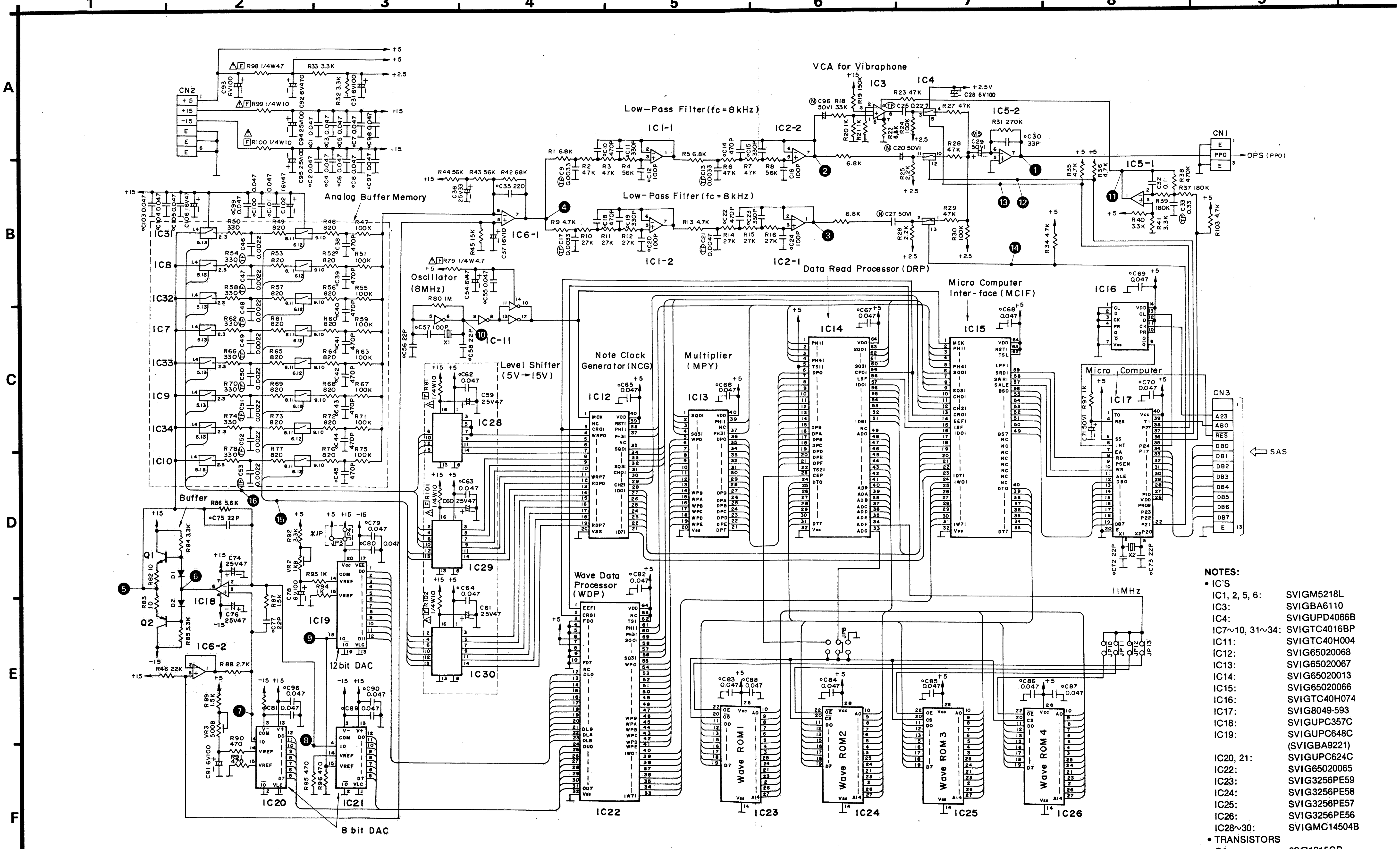


- Acoustic Piano
- Harmonic Control................Center
- Upper Key..............................C4

Q1, Q2 Gate


• Q1 Gate
+5V
mellow
0V
• Q2 Gate
+5V
bright
0V

DIGITAL PERCUSSIVE PRESETS CIRCUIT DIAGRAM (DPPS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CN2
CN1
OPS (PPO)
CN3
SAS
VCA for Vibraphone
Low-Pass Filter (fc = 8 kHz)
Low-Pass Filter (fc = 8 kHz)
Analog Buffer Memory
Oscillator (8MHz)
Level Shifter (5V→15V)
Note Clock Generator (NCG)
Multiplier (MPY)
Data Read Processor (DRP)
Micro Computer Inter-face (MCIF)
Micro Computer
Wave Data Processor (WDP)
Buffer
12bit DAC
8 bit DAC
11MHz
IC1-1
IC1-2
IC2-1
IC2-2
IC3
IC4
IC5-1
IC5-2
IC6-1
IC6-2
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC28
IC29
IC30
IC31
IC32
IC33
IC34
Wave ROM1
Wave ROM2
Wave ROM 3
Wave ROM 4
Q1
Q2
X1
X2
JP3
JP4
JP8

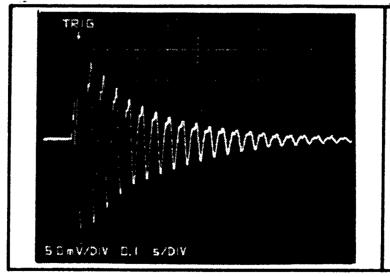
NOTES:
- IC'S
  - IC1, 2, 5, 6: SVIGM5218L
  - IC3: SVIGBA6110
  - IC4: SVIGUPD4066B
  - IC7~10, 31~34: SVIGTC4016BP
  - IC11: SVIGTC40H004
  - IC12: SVIG65020068
  - IC13: SVIG65020067
  - IC14: SVIG65020013
  - IC15: SVIG65020066
  - IC16: SVIGTC40H074
  - IC17: SVIG8049-593
  - IC18: SVIGUPC357C
  - IC19: SVIGUPC648C (SVIGBA9221)
  - IC20, 21: SVIGUPC624C
  - IC22: SVIG65020065
  - IC23: SVIG3256PE59
  - IC24: SVIG3256PE58
  - IC25: SVIG3256PE57
  - IC26: SVIG3256PE56
  - IC28~30: SVIGMC14504B
- TRANSISTORS
  - Q1: 2SC1815GR
  - Q2: 2SA1015GR
- DIODES
  - D1, 2: MA165TA5VT
- QUARTZ (or CERAMIC) OSCILLATORS
  - X1: SVQG43U7991T
  - X2: SVQGCSA110MT

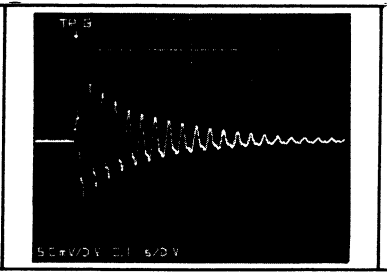
■ Precautions for servicing

*JP...When replacing IC19, check JP3 or JP4. Use SVIGBA9221 for JP3, and SVIGUPC648C for JP4. Also, when using SVIGUPC648C on P.C.B. with JP3 inserted, remove JP3 and insert JP4.

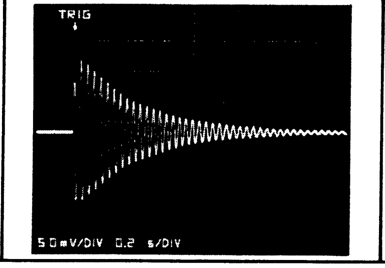
IC19	JP3	JP4
SVIGUPC648C	not insert	insert
SVIGBA9221	insert	not insert

DIGITAL PERCUSSIVE PRESETS CIRCUIT BOARD (DPPS)

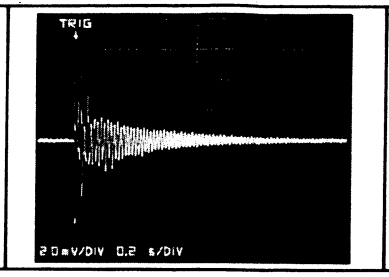
❶


❷


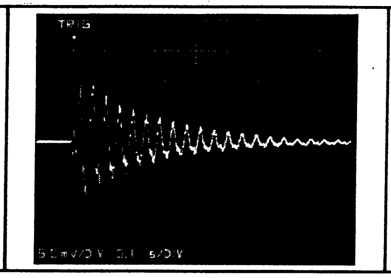
(• Acoustic Piano • Upper Key.....C4 • Sustain.....Step 2)

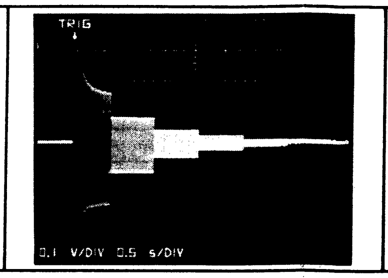
❷


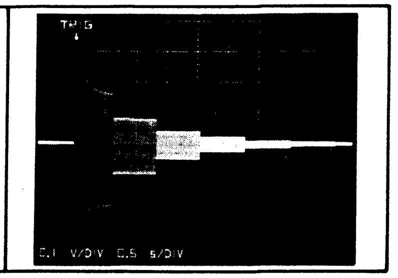
• Vibraphone • Upper Key.....C4
• Sustain..........Step 2

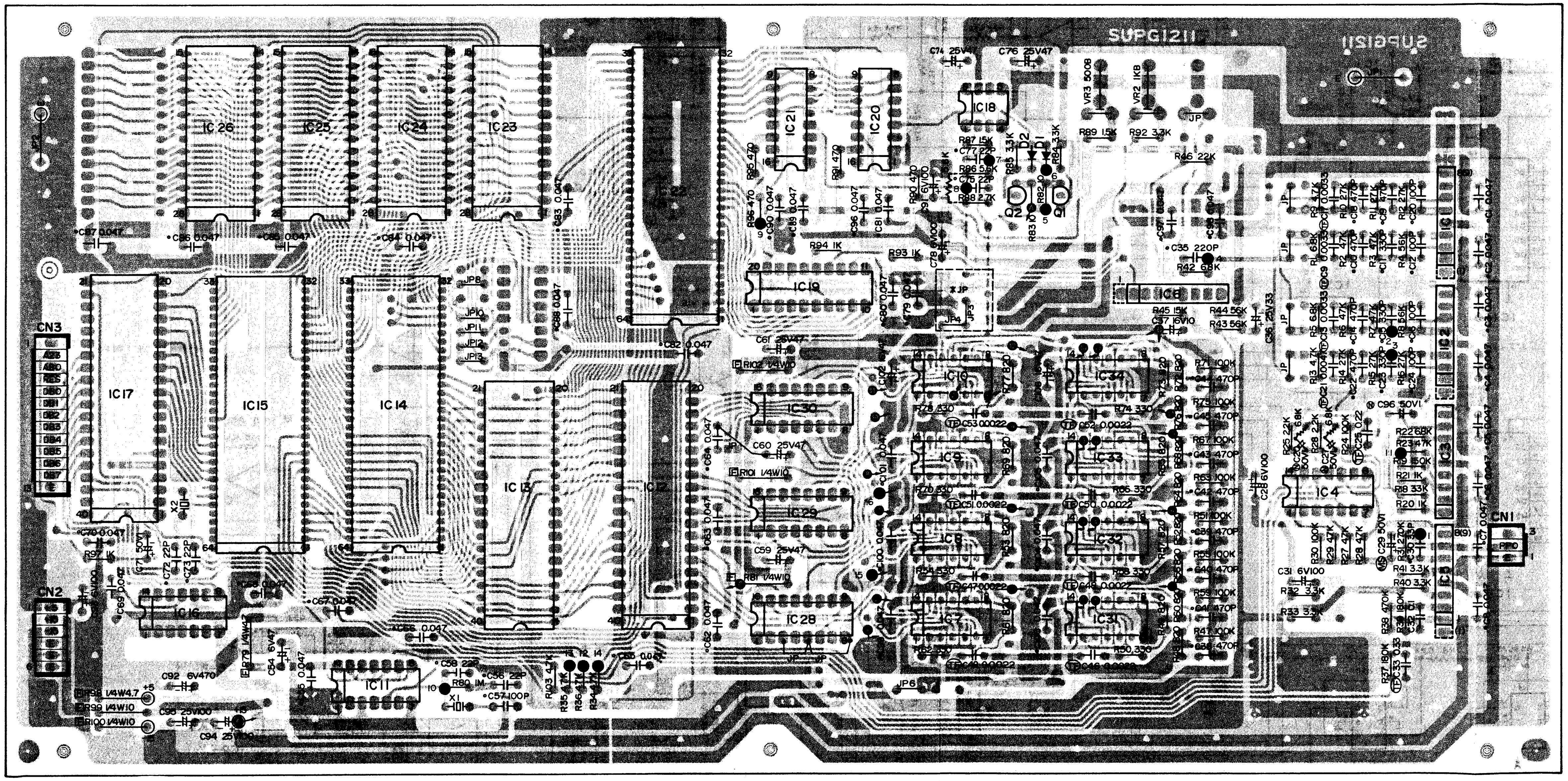
❸


• Glocken • Upper Key.....C4
• Sustain..........Step 2

❹


❺


❻



SUPG1211
IC26
IC25
IC24
IC23
IC22
IC21
IC20
IC18
IC19
IC17
IC15
IC14
IC13
IC12
IC16
IC11
IC30
IC29
IC28
IC10
IC9
IC8
IC7
IC34
IC33
IC32
IC31
IC6
IC4
CN1
CN2
CN3
JP1
JP2
JP3
JP4
JP6
JP8
JP10
JP11
JP12
JP13
VR3 500B
VR2 1KB
Q1
Q2
D1
D2
X1
X2

Circuit view on top of P.C.B.

■ Measuring Conditions Check Point ❹~❿

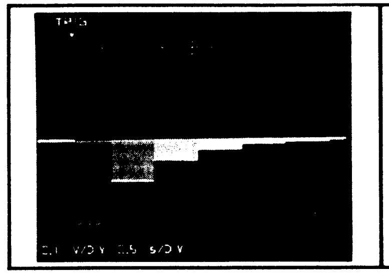
- PPS : Acoustic Piano
- Upper Key : C4
- Sustain : Step 2

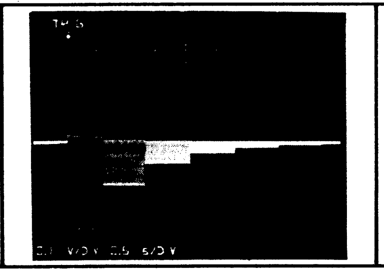
■ Precautions for servicing

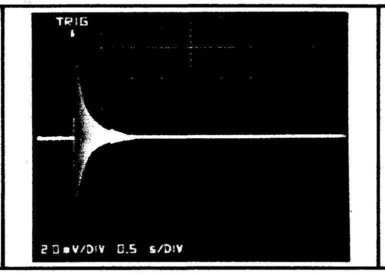
*JP...When replacing IC19, check JP3 or JP4. Use SVIGBA9221 for JP3, and SVIGUPC648C for JP4. Also, when using SVIGUPC648C on P.C.B. with JP3 inserted, remove JP3 and insert JP4.

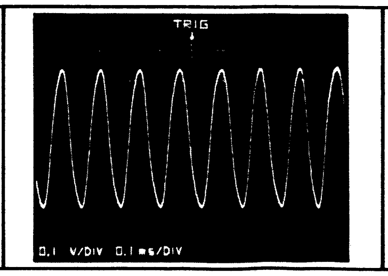
IC19	JP3	JP4
SVIGUPC648C	not insert	insert
SVIGBA9221	insert	not insert

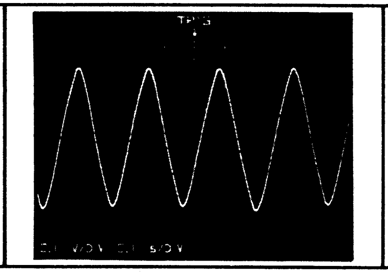
SXPG12111

❼


❽


❾


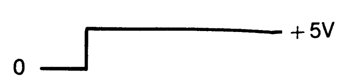
❿


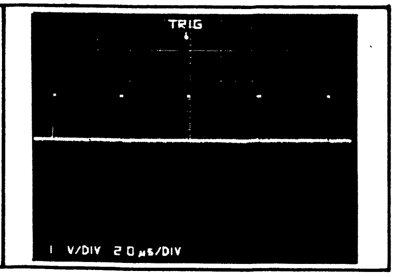
⓫ 4.3Hz


• Vibraphone

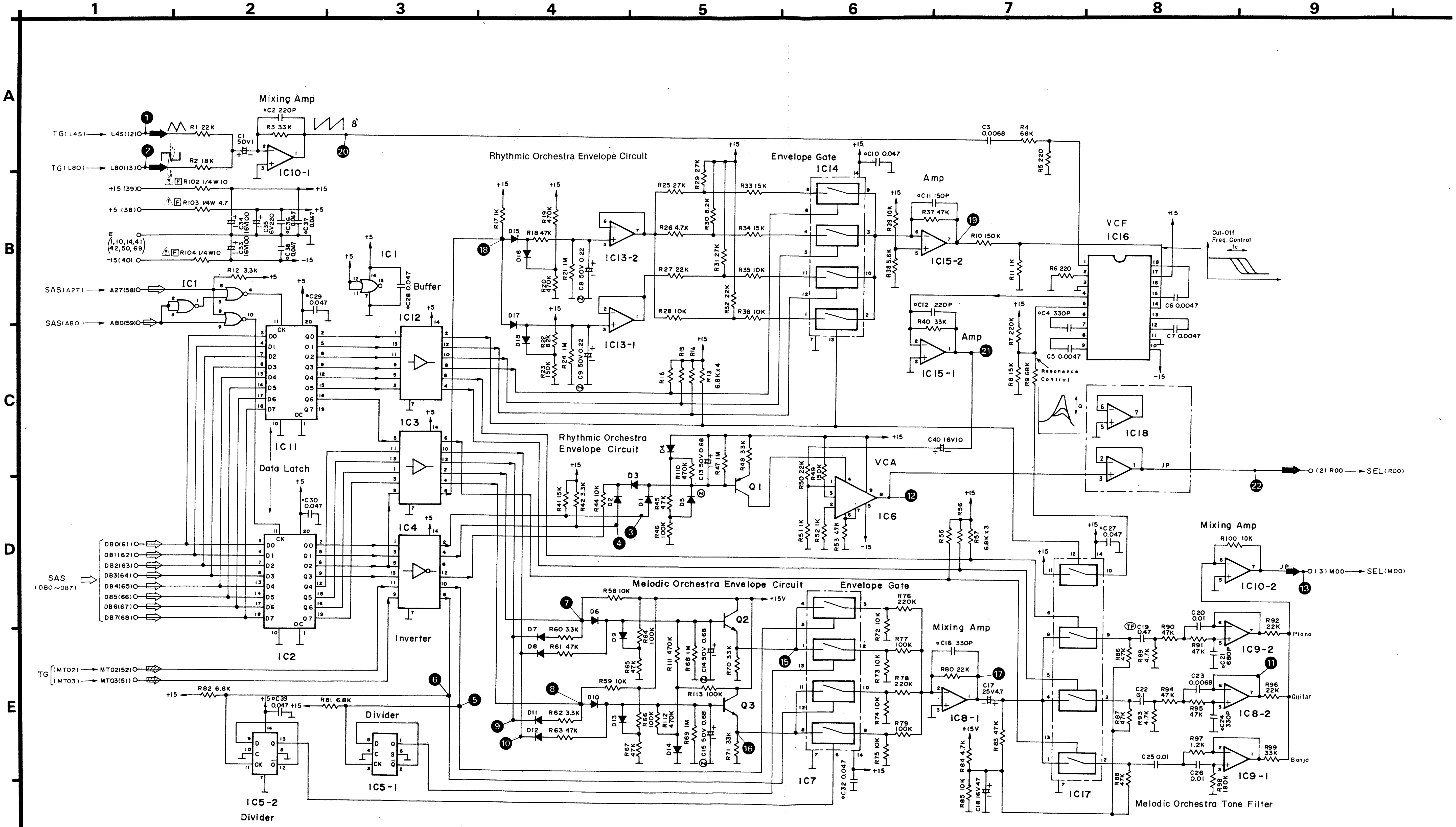
⓬, ⓭, ⓮

⓮: Glocken, Harpsichord
⓭: Vibraphone
⓬: Others



⓯, ⓰


ACCOMPANIMENT CIRCUIT DIAGRAM (ACC)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Mixing Amp
TG(L4S) → L4S(12)
TG(L80) → L80(13)
R1 22K
R2 18K
C2 220P
R3 33K
C1 50V1
IC10-1
8'
+15 (39)
+5 (38)
E (1,10,14,41, 42,50,69)
-15(40)
R102 1/4W10
R103 1/4W 4.7
R104 1/4W10
SAS(A27) → A27(58)
SAS(A80) → A80(59)
IC1
R12 3.3K
Buffer
C28 0.047
C29 0.047
IC11
Data Latch
IC12
IC3
IC4
Inverter
IC2
C30 0.047
SAS (DB0~DB7)
DB0(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
TG (MT02) → MT02(52)
(MT03) → MT03(51)
R82 6.8K
R81 6.8K
C39 0.047
Divider
IC5-2
IC5-1
Rhythmic Orchestra Envelope Circuit
R17 1K
D15
R18 47K
R19 470K
D16
R20 470K
R21 1M
C8 50V 0.22
IC13-2
IC13-1
D17
D18
R22 82K
R23 150K
R24 1M
C9 50V 0.22
R25 27K
R26 4.7K
R27 22K
R28 10K
R29 27K
R30 8.2K
R31 27K
R32 22K
R33 15K
R34 15K
R35 10K
R36 10K
R16
R15
R14
R13 6.8K×4
Envelope Gate
IC14
C10 0.047
Amp
C11 150P
R37 47K
R39 10K
R38 5.6K
IC15-2
R10 150K
C12 220P
R40 33K
IC15-1
C3 0.0068
R4 68K
R5 220
VCF
IC16
R11 1K
R6 220
C4 330P
C5 0.0047
C6 0.0047
C7 0.0047
R7 220K
R8 15K
R9 68K
Resonance Control
Cut-Off Freq. Control
fc
Q
IC18
JP
(2) R00 → SEL(R00)
Rhythmic Orchestra Envelope Circuit
D4
D3
D1
D2
D5
R41 15K
R42 3.3K
R44 10K
R45 47K
R46 100K
R110 470K
C13 50V 0.68
R47 1M
R48 33K
Q1
C40 16V10
VCA
R50 22K
R49 150K
R51 1K
R52 1K
R53 47K
IC6
R55
R56
R57 6.8K×3
C27 0.047
Mixing Amp
R100 10K
IC10-2
(3) M00 → SEL(M00)
Melodic Orchestra Envelope Circuit
R58 10K
D6
D7
D8
R60 33K
R61 47K
D9
R64 100K
R65 47K
R111 470K
R68 1M
C14 50V 0.68
R70 33K
Q2
R59 10K
R113 100K
D10
D11
D12
R62 3.3K
R63 47K
D13
R66 100K
R112 470K
R67 47K
D14
R69 1M
C15 50V 0.68
R71 33K
Q3
Envelope Gate
IC7
C32 0.047
R72 10K
R73 10K
R74 10K
R75 10K
R76 220K
R77 100K
R78 220K
R79 100K
Mixing Amp
C16 330P
R80 22K
IC8-1
C17 25V4.7
R83 47K
R84 4.7K
R85 10K
C18 16V47
IC17
C19 0.47
C20 0.01
R90 47K
R91 47K
C21 680P
R86 47K
R89 4.7K
R92 22K
IC9-2
Piano
C22 0.1
C23 0.0068
R94 47K
R95 47K
C24 330P
R87 47K
R93 4.7K
R96 22K
IC8-2
Guitar
C25 0.01
R97 1.2K
C26 0.01
R98 180K
R88 47K
R99 33K
IC9-1
Banjo
Melodic Orchestra Tone Filter

NOTES:

- IC'S

IC1:	SVIGTC40H002	IC6:	SVIGBA6110
IC2, 11:	SVIGTC40H374	IC7, 14, 17:	SVIGUPD4066B
IC3, 12:	SVIGM53217	IC8~10, 13, 15, 18:	SVIGM5218L
IC4:	SVIGM53216		(SVIGNJM4558S)
IC5:	SVIGTC4013BP	IC16:	SVIGBA6704

- TRANSISTORS

Q1:	2SA1015GR
Q2, 3:	2SC2320LFG

- DIODES

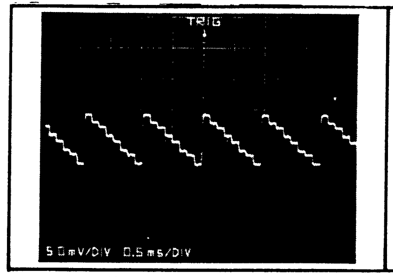
D1~18:	MA165TA5VT

ACCOMPANIMENT CIRCUIT BOARD (ACC)

1 2 3 4 5 6 7 8 9

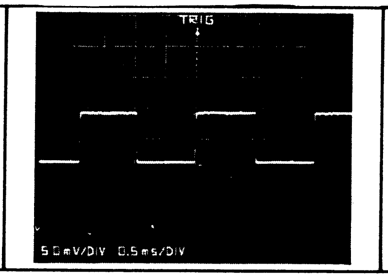
A B C D E F

❶ Rhythmic Orchestra



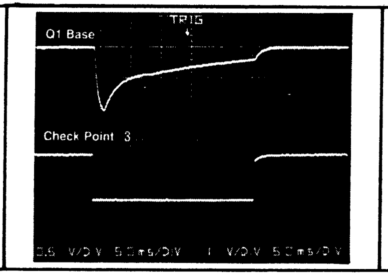
- Lower Key............................C4

❷ Rhythmic Orchestra



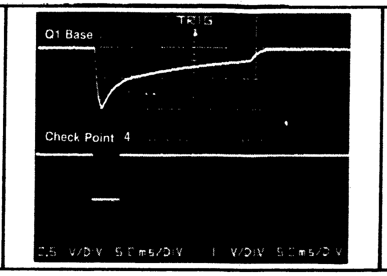
- Lower Key............................C4

❸ Rhythmic Orchestra



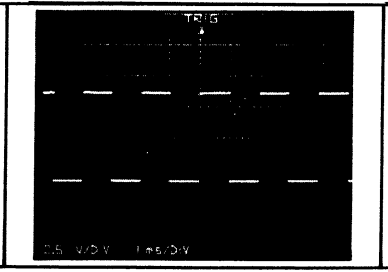
- Rhythm..........................Bossanova I
- Lower Key......................C3

❹ Rhythmic Orchestra



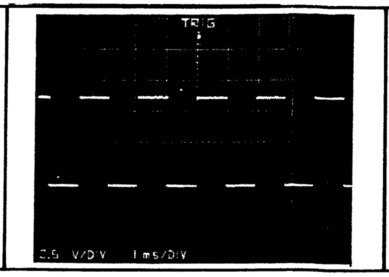
- Rhythm..........................Bossanova I
- Lower Key......................C3

❺ Melodic Orchestra



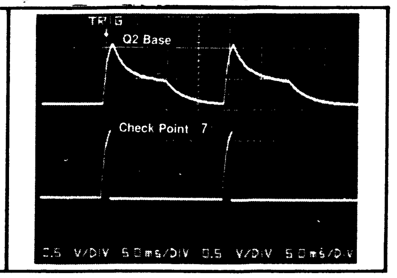
- Rhythm..........................Bossanova I
- Lower Key......................C3

❻ Melodic Orchestra



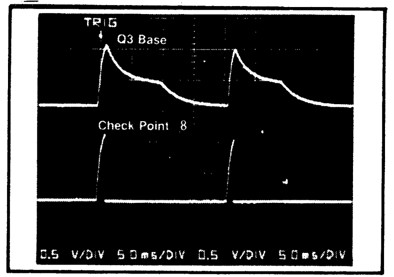
- Rhythm..........................Bossanova I
- Lower Key......................C3

❼ Melodic Orchestra

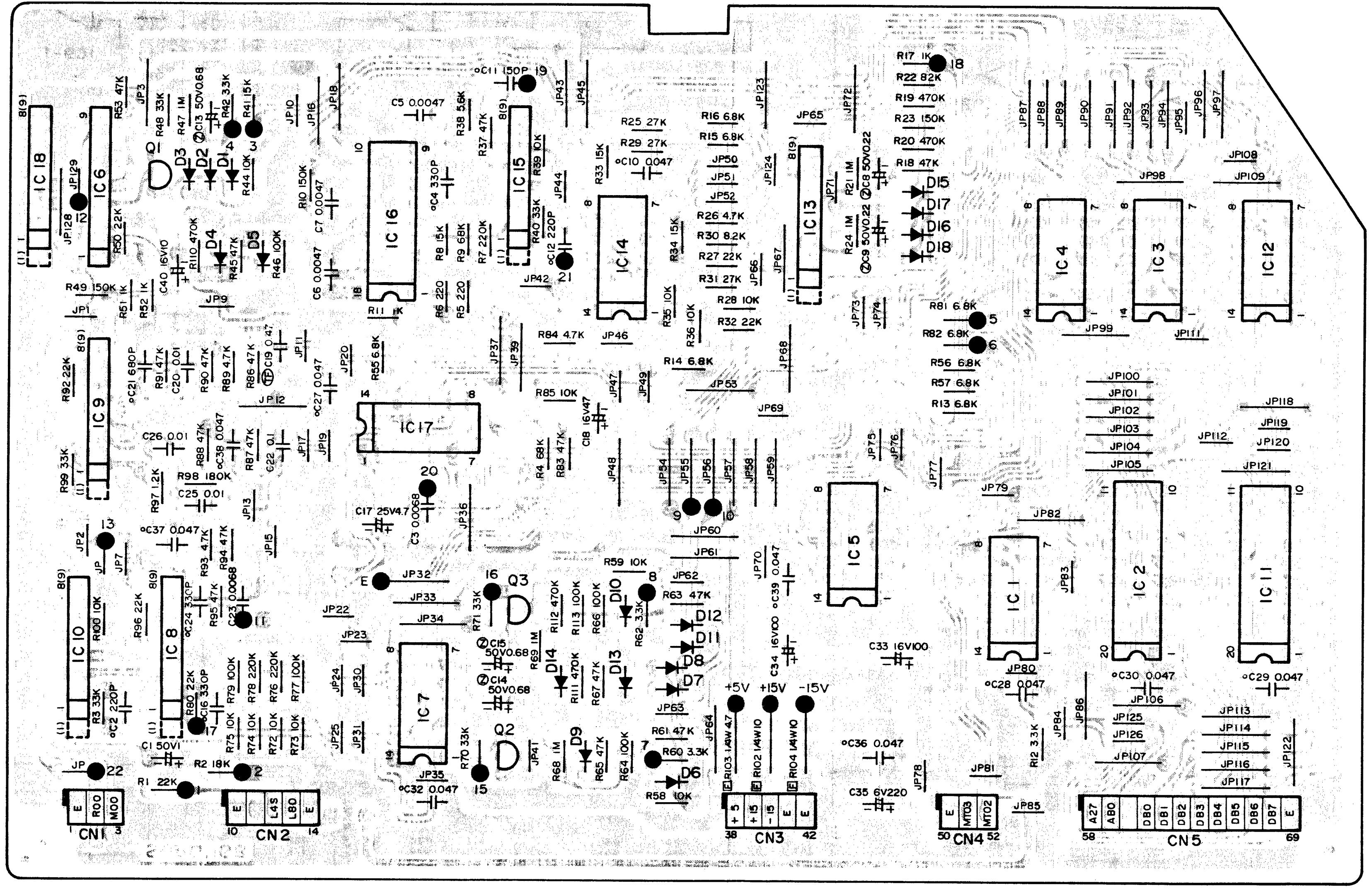


- Rhythm..........................Bossanova I
- Lower Kev.....................C3 Key

❽ Melodic Orchestra

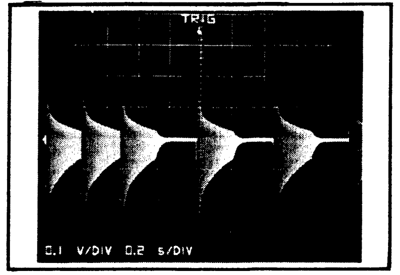


- Rhythm..........................Bossanova I
- Lower Key C3


IC18
IC6
IC16
IC15
IC14
IC13
IC4
IC3
IC12
IC9
IC17
IC5
IC1
IC2
IC11
IC10
IC8
IC7
Q1
Q2
Q3
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
+5V
+15V
-15V
CN1
CN2
CN3
CN4
CN5

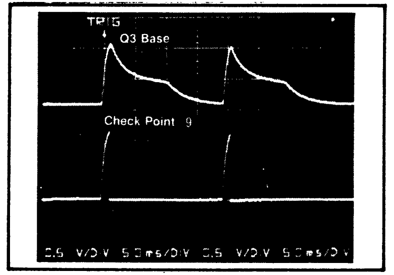
SXPG11684

⓫ Melodic Orchestra



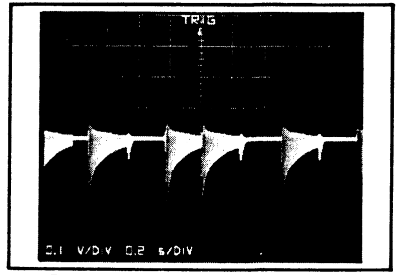
- Rhythm.................................Bossanova I
- Lower Key..........C3 • Melodic..........II

❾ Melodic Orchestra



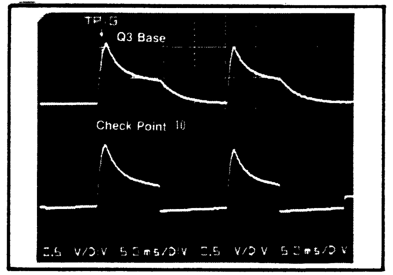
- Rhythm..........................Bossanova I
- Lower Key......................C3

⓬ Rhythmic Orchestra



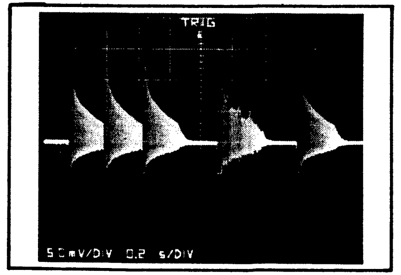
- Rhythm.................................Bossanova I
- Lower Key..........C3 • Rhythmic..........II

❿ Melodic Orchestra



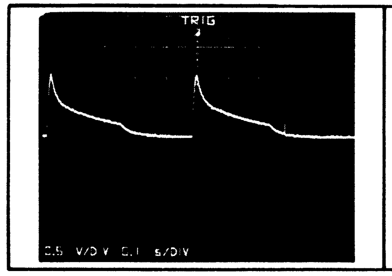
- Rhythm..........................Bossanova I
- Lower Key......................C3

⓭ Melodic Orchestra



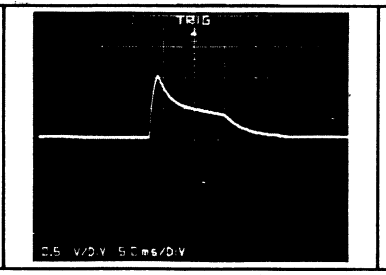
- Rhythm.................................Bossanova I
- Lower Key..........C3 • Melodic..........II

⓯ Melodic Orchestra



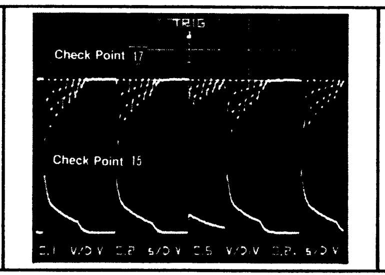
- Rhythm.................................Bossanova I
- Lower Key..........C3 • Melodic..........II

⓰ Melodic Orchestra



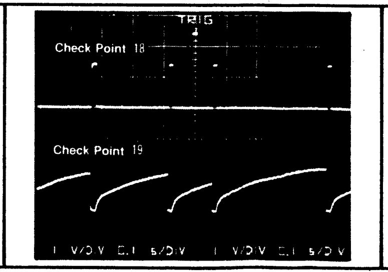
- Rhythm.................................Bossanova I
- Lower Key..........C3 • Melodic..........II

⓱ Melodic Orchestra



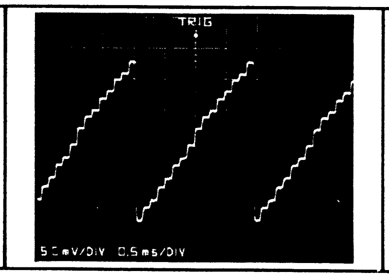
- Rhythm.................................Bossanova I
- Lower Key..........C4 • Melodic..........II

⓲, ⓳ Rhythmic Orchestra



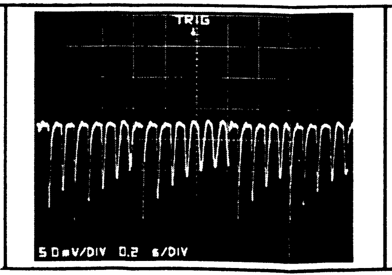
- Rhythm.................................Bossanova I
- Lower Key..........C3 • Rhythmic..........II

⓴ Rhythmic Orchestra



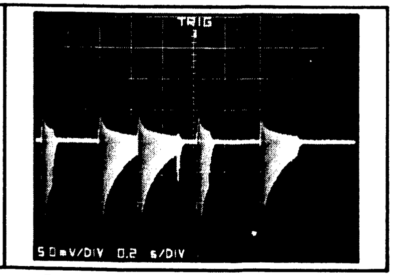
- Lower Key............................C4

㉑ Rhythmic Orchestra



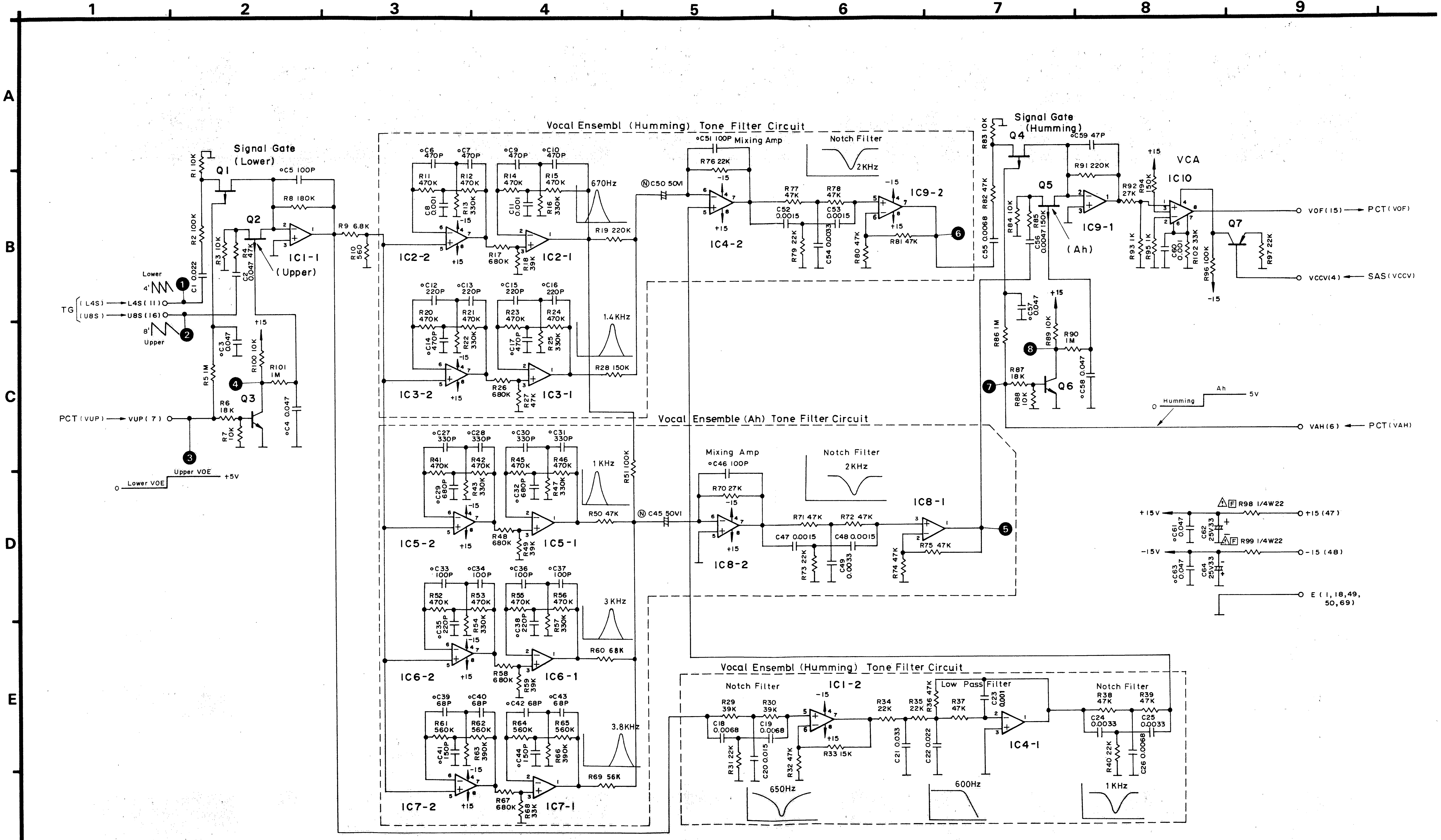
- Rhythm.................................Bossanova I
- Lower Key..........C3 • Melodic..........II

㉒ Rhythmic Orchestra



- Rhythm.................................Bossanova I
- Lower Key..........C3 • Melodic..........II

VOCAL ENSEMBLE CIRCUIT DIAGRAM (VOE)

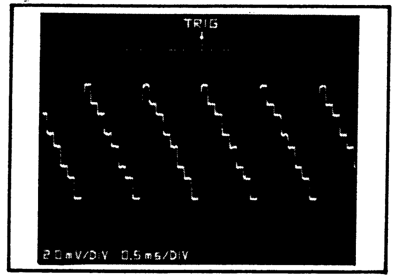

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Signal Gate (Lower)
Q1
Q2
(Upper)
IC1-1
R1 10K
R2 100K
R3 10K
R4 47K
C1 0.022
C2 0.047
C3 0.047
C4 0.047
C5 100P
R8 180K
R9 6.8K
R10 560
R5 1M
R6 18K
R7 10K
R100 10K
R101 1M
Q3
Lower 4'
Upper 8'
TG
(L4S) L4S (11)
(U8S) U8S (16)
PCT (VUP) VUP (7)
Lower VOE
Upper VOE
+5V
Vocal Ensembl (Humming) Tone Filter Circuit
IC2-2
IC2-1
IC3-2
IC3-1
670Hz
1.4KHz
R19 220K
R28 150K
C50 50V1
C51 100P Mixing Amp
R76 22K
IC4-2
Notch Filter
2KHz
R77 47K
R78 47K
C52 0.0015
C53 0.0015
R79 22K
C54 0.0033
R80 47K
R81 47K
IC9-2
Vocal Ensemble (Ah) Tone Filter Circuit
IC5-2
IC5-1
IC6-2
IC6-1
IC7-2
IC7-1
1KHz
3KHz
3.8KHz
R50 47K
R51 100K
R60 68K
R69 56K
C45 50V1
Mixing Amp
C46 100P
R70 27K
IC8-2
IC8-1
R71 47K
R72 47K
C47 0.0015
C48 0.0015
R73 22K
C49 0.0033
R74 47K
R75 47K
Signal Gate (Humming)
Q4
Q5
(Ah)
Q6
Q7
R83 10K
R82 47K
C55 0.0068
R84 10K
R85 150K
C56 0.0047
C57 0.047
R86 1M
R87 18K
R88 10K
R89 10K
R90 1M
C58 0.047
C59 47P
R91 220K
IC9-1
R92 27K
R93 1K
R94 150K
R95 1K
C60 0.001
R102 33K
R96 100K
R97 22K
VCA
IC10
+15
-15
VOF (15) PCT (VOF)
VCCV (4) SAS (VCCV)
VAH (6) PCT (VAH)
Humming
Ah
5V
R98 1/4W22
R99 1/4W22
C61 0.047
C62 25V33
C63 0.047
C64 25V33
+15 (47)
-15 (48)
E (1, 18, 49, 50, 69)
Vocal Ensembl (Humming) Tone Filter Circuit
Notch Filter
R29 39K
R30 39K
C18 0.0068
C19 0.0068
R31 22K
C20 0.015
R32 47K
IC1-2
R33 15K
R34 22K
R35 22K
R36 47K
C21 0.033
C22 0.022
Low Pass Filter
C23 0.001
R37 47K
IC4-1
R38 47K
R39 47K
C24 0.0033
C25 0.0033
R40 22K
C26 0.0068
650Hz
600Hz
1KHz

NOTES:

- IC'S
  - IC1~9: SVIGM5218L (SVIGNJM4558S)
  - IC10: SVIGBA6110
- TRANSISTORS
  - Q1, 2, 4, 5: 2SJ40CD
  - Q3, 6: 2SC2320LFG
  - Q7: 2SA1015GR

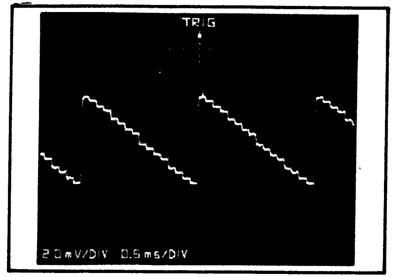
VOCAL ENSEMBLE CIRCUIT BOARD (VOE)

❶



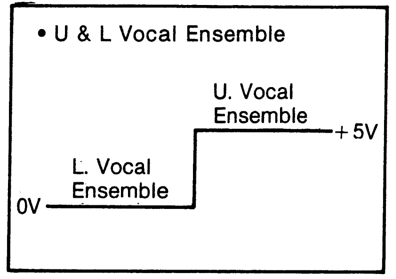
- Lower Vocal Ensemble
- Lower Key......................C4

❷

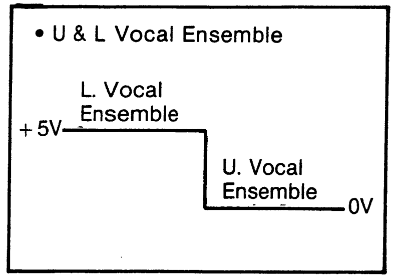


- Upper Vocal Ensemble
- Upper Key......................C4

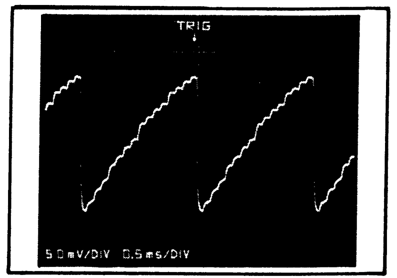
❸


• U & L Vocal Ensemble
U. Vocal Ensemble
+5V
L. Vocal Ensemble
0V

❹

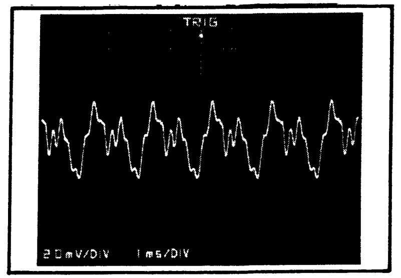

• U & L Vocal Ensemble
L. Vocal Ensemble
+5V
U. Vocal Ensemble
0V

IC1-1 Pin No. 1

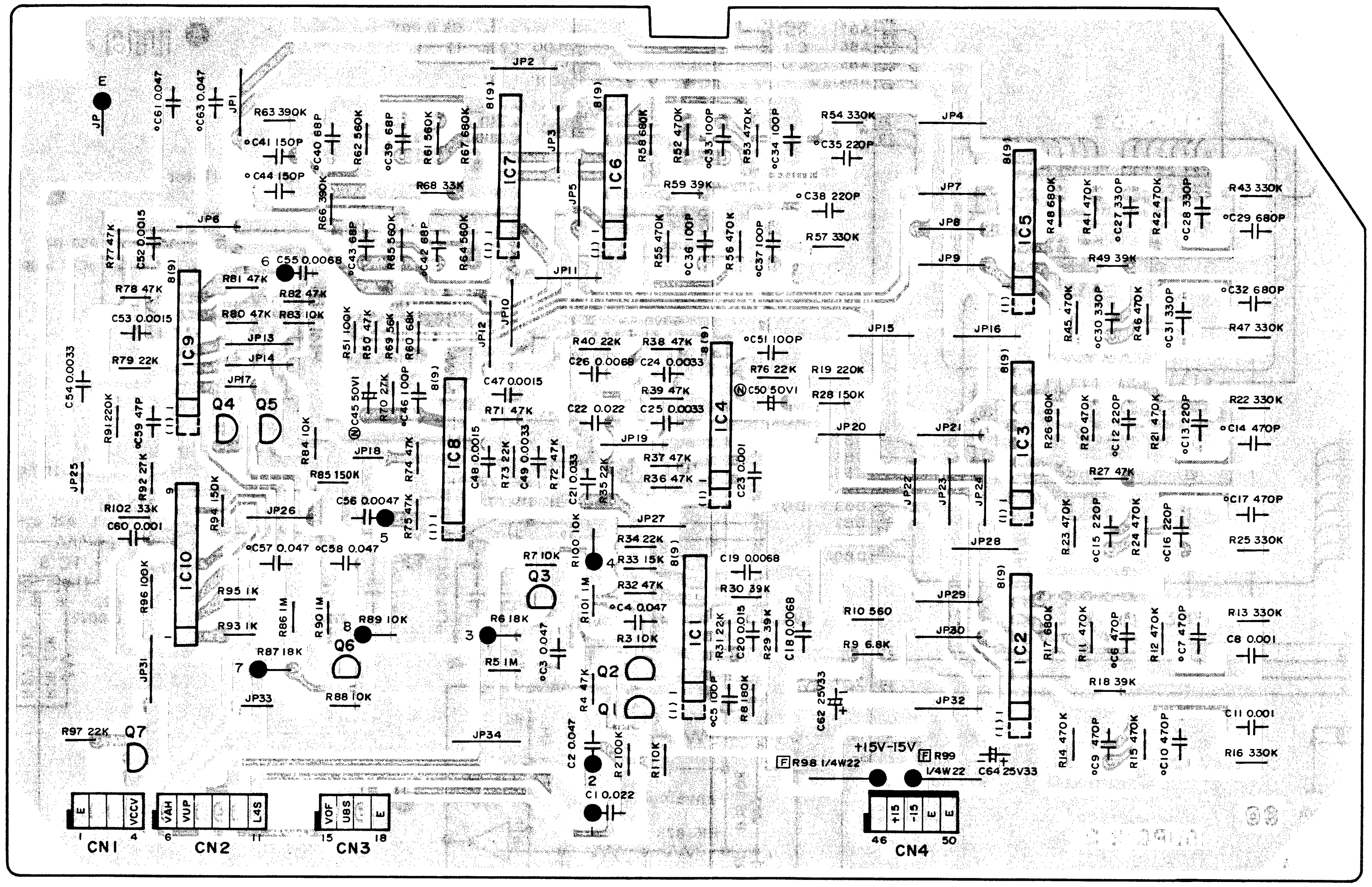


- U. Vocal Ensemble
- Upper Key......................C4

❺ U. Vocal Ensemble: Ah

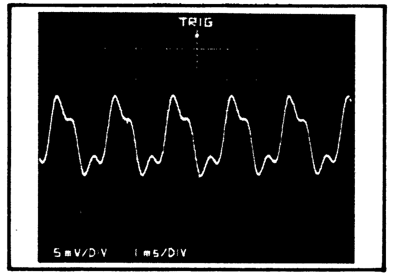


- Upper Key......................C4


JP m
C61 0.047
C63 0.047
JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8
JP9
JP10
JP11
JP12
JP13
JP14
JP15
JP16
JP17
JP18
JP19
JP20
JP21
JP22
JP23
JP24
JP25
JP26
JP27
JP28
JP29
JP30
JP31
JP32
JP33
JP34
R63 390K
C41 150P
C44 150P
C40 68P
R62 560K
C39 68P
R61 560K
R67 680K
R68 33K
R66 390K
C43 68P
R65 560K
C42 68P
R64 560K
R58 680K
R52 470K
C33 100P
R53 470K
C34 100P
R54 330K
C35 220P
R59 39K
C38 220P
R57 330K
R55 470K
C36 100P
R56 470K
C37 100P
R48 680K
R41 470K
C27 330P
R42 470K
C28 330P
R43 330K
C29 680P
R49 39K
C32 680P
R45 470K
C30 330P
R46 470K
C31 330P
R47 330K
R77 47K
C52 0.0015
R78 47K
C53 0.0015
R79 22K
C54 0.0033
R91 220K
C59 47P
R92 27K
R102 33K
C60 0.001
R96 100K
R94 150K
R81 47K
C55 0.0068
R82 47K
R80 47K
R83 10K
R51 100K
R50 47K
R69 56K
R60 68K
C45 50V1
R70 27K
C46 100P
R74 47K
R75 47K
R84 10K
R85 150K
C56 0.0047
C57 0.047
C58 0.047
R95 1K
R93 1K
R86 1M
R90 1M
R89 10K
R87 18K
R88 10K
R97 22K
C47 0.0015
R71 47K
C48 0.0015
R73 22K
C49 0.0033
R72 47K
C21 0.033
R35 22K
R40 22K
R38 47K
C26 0.0068
C24 0.0033
R39 47K
C22 0.022
C25 0.0033
R37 47K
R36 47K
C51 100P
R76 22K
C50 50V1
R19 220K
R28 150K
C23 0.001
R26 680K
R20 470K
C12 220P
R21 470K
C13 220P
R22 330K
C14 470P
R27 47K
C17 470P
R23 470K
C15 220P
R24 470K
C16 220P
R25 330K
R34 22K
R33 15K
R32 47K
R7 10K
R100 10K
R101 1M
R6 18K
R5 1M
C3 0.047
C4 0.047
R3 10K
C19 0.0068
R30 39K
R31 22K
C20 0.015
R29 39K
C18 0.0068
C5 100P
R8 180K
R10 560
R9 6.8K
C62 25V33
R17 680K
R11 470K
C6 470P
R12 470K
C7 470P
R13 330K
C8 0.001
R18 39K
R14 470K
C9 470P
R15 470K
C10 470P
C11 0.001
R16 330K
R4 47K
C2 0.047
R2 100K
R1 10K
C1 0.022
+15V-15V
R98 1/4W22
R99 1/4W22
C64 25V33
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
Q1
Q2
Q3
Q4
Q5
Q6
Q7
1
2
3
4
5
6
7
8
E
VCCV
CN1
VAH
VUP
L4S
CN2
VOF
U8S
E
CN3
+15
-15
E
E
CN4
1
4
6
11
15
18
46
50

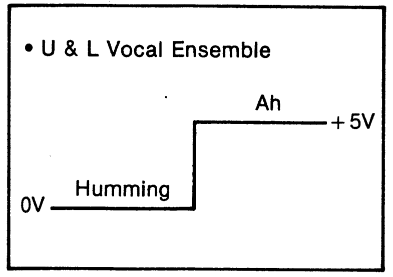
SXPG12121

❻ U. Vocal Ensemble: Humming

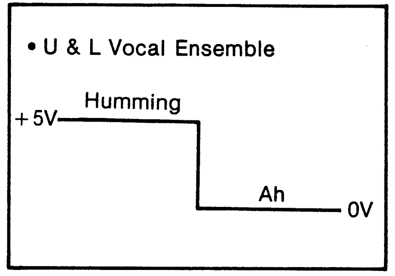


- Upper Key......................C4

❼


• U & L Vocal Ensemble
Ah
+5V
Humming
0V

❽


• U & L Vocal Ensemble
+5V
Humming
Ah
0V

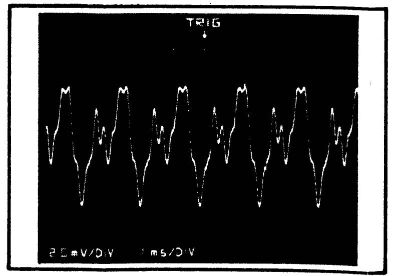
VCCV Terminal

U&L Vocal Ensemble

- Volume Control

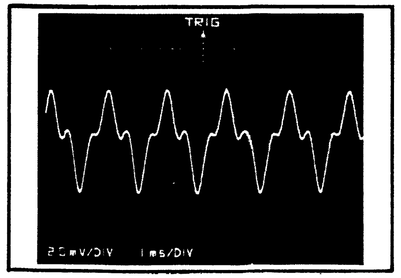
step 1.................... –2.6V
step 2.................... –4.1V
step 3.................... –6.8V
step 4.................... –11.6V

VOF Terminal: Ah



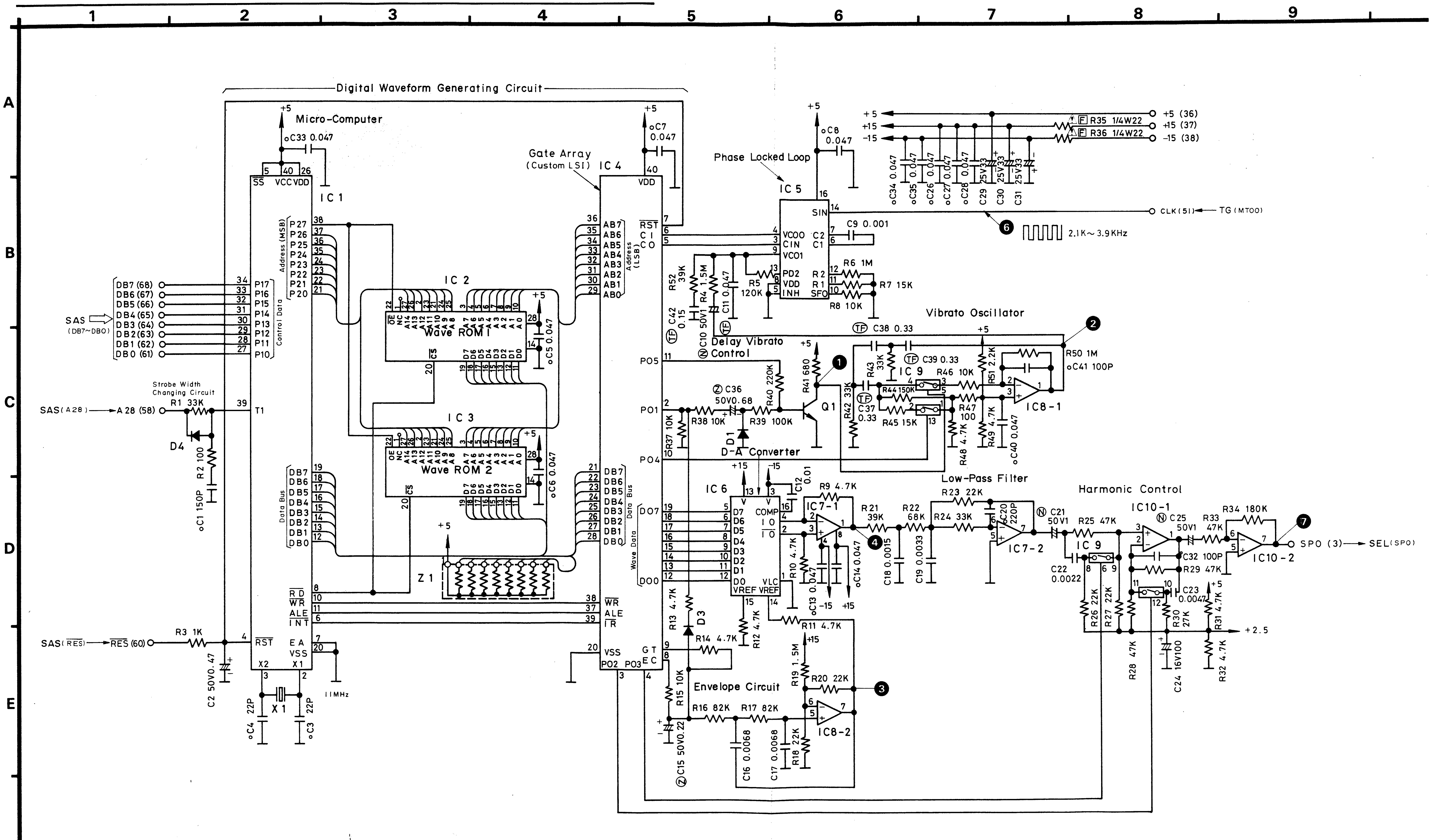
- U. Vocal Ensemble.............Ah
- Volume.................................max
- Upper Key............................C4

VOF Terminal: Humming



- U. Vocal Ensemble.............Humming
- Volume.................................max
- Upper Key............................C4

SOLO SYNTHE PRESETS CIRCUIT DIAGRAM (SPS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Digital Waveform Generating Circuit
Micro-Computer
IC 1
C33 0.047
+5
Gate Array
(Custom LSI) IC 4
C7 0.047
Phase Locked Loop
IC 5
C8 0.047
+5 (36)
+15 (37)
-15 (38)
R35 1/4W22
R36 1/4W22
C34 0.047
C35 0.047
C26 0.047
C27 0.047
C28 0.047
C29 25V33
C30 25V33
C31 25V33
CLK (51) ← TG (MTOO)
2.1K~3.9KHz
C9 0.001
R6 1M
R7 15K
R8 10K
R5 120K
R52 39K
R4 1.5M
C11 0.047
C10 50V1
C42 0.15
SAS (DB7~DB0)
DB7 (68)
DB6 (67)
DB5 (66)
DB4 (65)
DB3 (64)
DB2 (63)
DB1 (62)
DB0 (61)
Control Data
Address (MSB)
Address (LSB)
IC 2
Wave ROM 1
C5 0.047
IC 3
Wave ROM 2
C6 0.047
Strobe Width Changing Circuit
SAS (A28) → A 28 (58)
R1 33K
D4
R2 100
C1 150P
Data Bus
Wave Data
Z 1
Vibrato Oscillator
Delay Vibrato Control
C38 0.33
C39 0.33
C36 50V0.68
R40 220K
R41 680
Q1
R38 10K
R39 100K
D1
R37 10K
R43 33K
R42 33K
C37 0.33
R44 150K
R45 15K
R46 10K
R47 100
R48 4.7K
R49 4.7K
R51 2.2K
C40 0.047
IC 9
IC8-1
R50 1M
C41 100P
D-A Converter
IC 6
C12 0.01
R9 4.7K
IC7-1
R10 4.7K
C13 0.047
C14 0.047
Low-Pass Filter
R21 39K
R22 68K
R23 22K
R24 33K
C18 0.0015
C19 0.0033
C20 220P
IC7-2
Harmonic Control
C21 50V1
R25 47K
IC10-1
C25 50V1
R33 47K
R34 180K
IC10-2
C32 100P
R29 47K
C22 0.0022
C23 0.0047
R26 22K
R27 22K
R28 47K
R30 27K
R31 4.7K
R32 4.7K
C24 16V100
+2.5
SPO (3) → SEL (SPO)
R13 4.7K
D3
R14 4.7K
R12 4.7K
R11 4.7K
R19 1.5M
R20 22K
Envelope Circuit
R15 10K
C15 50V0.22
R16 82K
R17 82K
C16 0.0068
C17 0.0068
R18 22K
IC8-2
SAS (RES) → RES (60)
R3 1K
C2 50V0.47
C4 22P
X 1
C3 22P
11MHz
1
2
3
4
6
7

NOTES:

- IC'S

IC1: SVIG8050H090
IC2: SVIG3256PE48
IC3: SVIG3256PE49
IC4: SVIG65002019
IC5: SVIGHD14046B
IC6: SVIGUPC624C
IC7, 10: SVIGM5218L (SVIGNJM4558S)
IC8: SVIGNJM082D
IC9: SVIGUPD4066B

- TRANSISTORS

Q1: 2SC2320LFG

- DIODES

D1, 3, 4: MA165TA5VT

- COMPONENTS COMBINATION

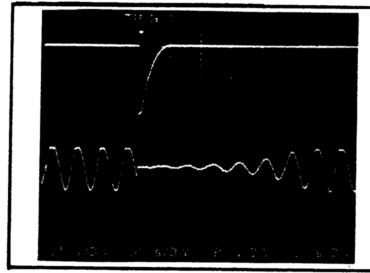
Z1: EXBP88103MM

- CERAMIC OSCILLATOR

X1: SVQGCSA110MT

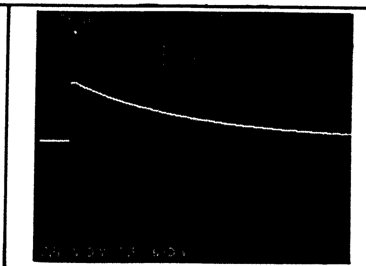
SOLO SYNTHE PRESETS CIRCUIT BOARD (SPS)

❶, ❷ Delay Vibrato



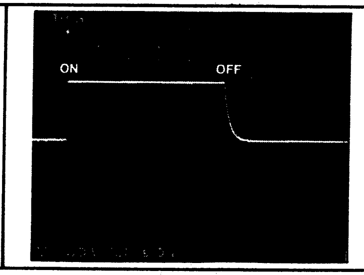
- Solo Synthe Presets
- Upper Key......................C4

❸ Envelope Control



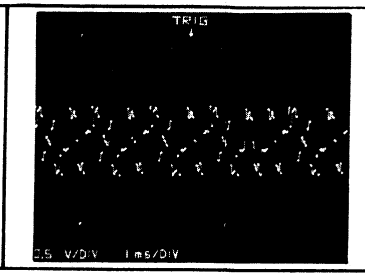
- Solo Synthe Presets............Rock Guitar
- Upper Key..............................C4

❸ Envelope Control



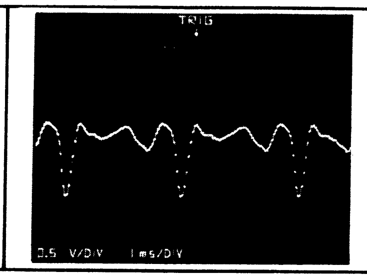
- Solo Synthe Presets............Trombone
- Upper Key............................ON→OFF

❹ Harmonica



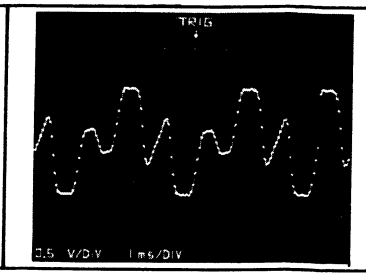
- Upper Key......................C4

❹ Trumpet



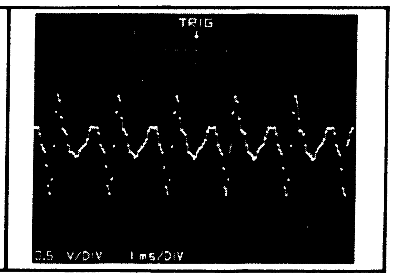
- Upper Key......................C4

❹ Clarinet



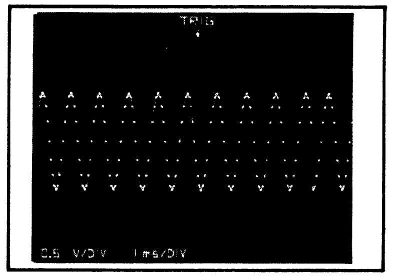
- Upper Key......................C4

❹ Oboe



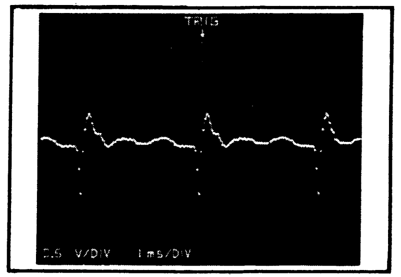
- Upper Key......................C4

❹ Whistle



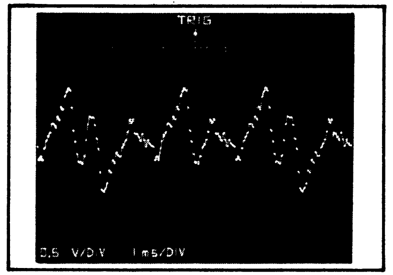
- Upper Key......................C4

❹ Trombone



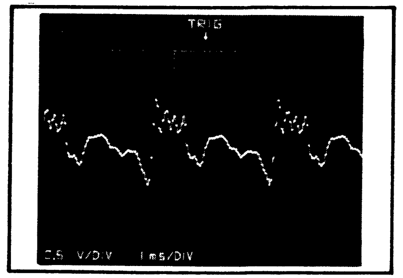
- Upper Key......................C4

❹ Cosmic



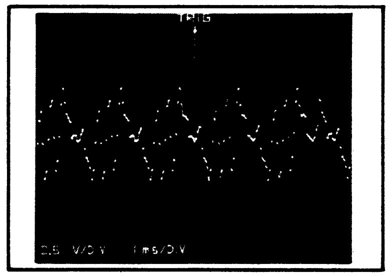
- Upper Key......................C4

❹ Saxophone



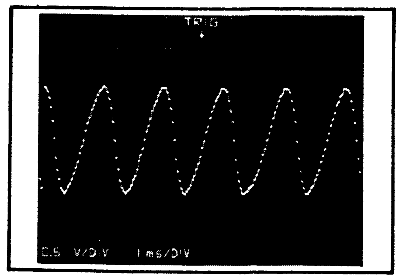
- Upper Key......................C4

❹ Violin

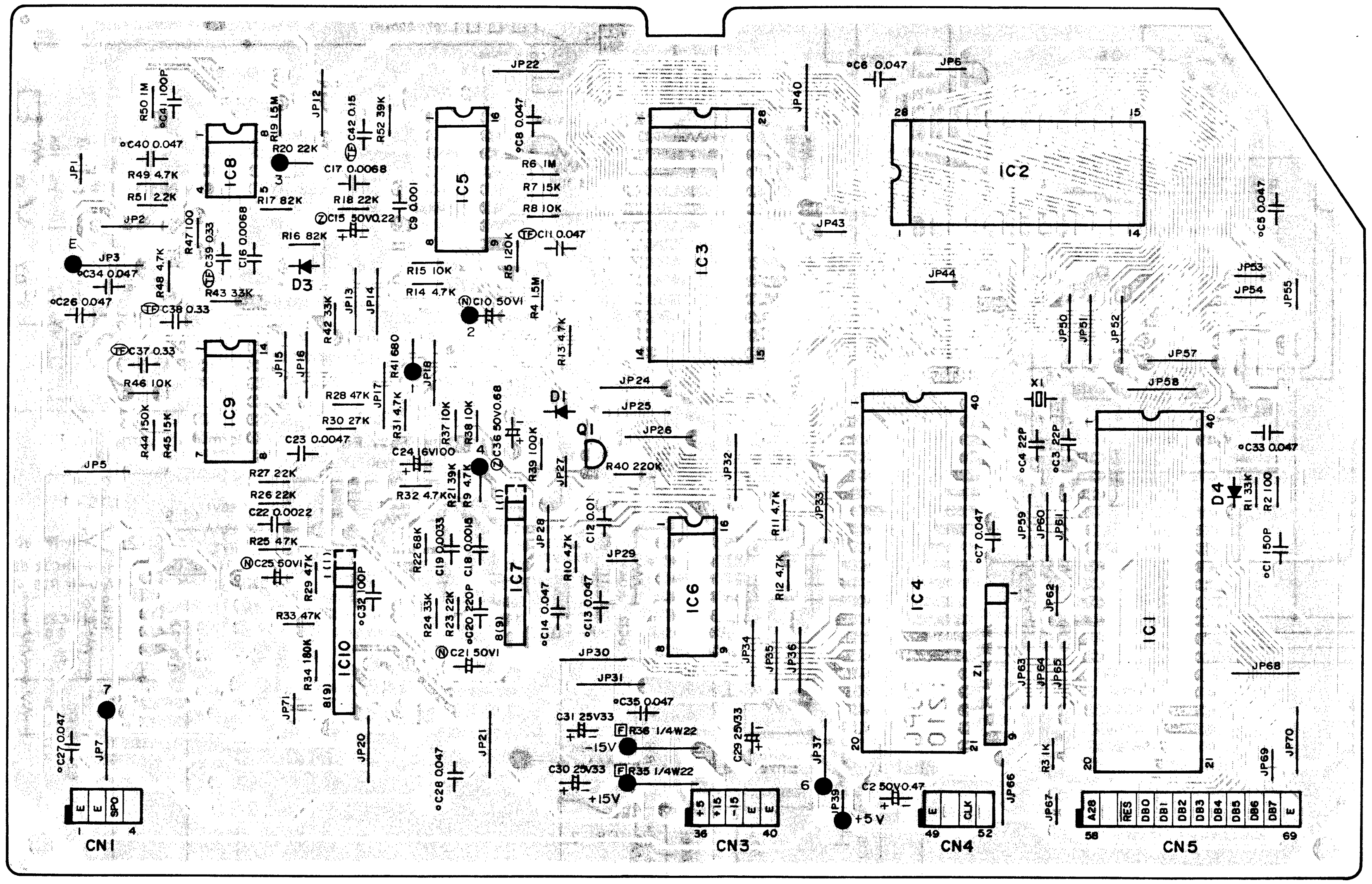


- Upper Key......................C4

❹ Flute

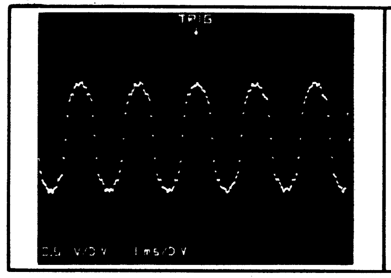


- Upper Key......................C4


IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
CN1
CN3
CN4
CN5
X1
Q1
D1
D3
D4
Z1
JP1
JP2
JP3
JP5
JP6
JP7
JP22
JP24
JP25
JP26
JP29
JP30
JP31
JP43
JP44
JP53
JP54
JP57
JP58
JP68
R50 1M
C41 100P
C40 0.047
R49 4.7K
R51 2.2K
C34 0.047
C26 0.047
R48 4.7K
R47 100
C39 0.33
C16 0.0068
C38 0.33
R43 33K
C37 0.33
R46 10K
R44 150K
R45 15K
R19 1.5M
R20 22K
C42 0.15
R52 39K
C17 0.0068
R17 82K
R18 22K
C15 50V0.22
C9 0.001
R16 82K
R15 10K
R14 4.7K
R42 33K
R41 680
R28 47K
R30 27K
C23 0.0047
R27 22K
R26 22K
C22 0.0022
R25 47K
C25 50V1
R29 47K
C32 100P
R33 47K
R34 180K
C8 0.047
R6 1M
R7 15K
R8 10K
C11 0.047
R5 120K
R4 1.5M
C10 50V1
R13 4.7K
R37 10K
R38 10K
C36 50V0.68
R31 4.7K
C24 16V100
R21 39K
R9 47K
R32 4.7K
R39 100K
R40 220K
C12 0.01
R10 47K
C13 0.047
C14 0.047
R22 68K
C19 0.0033
C18 0.0015
R24 33K
R23 22K
C20 220P
C21 50V1
C28 0.047
C27 0.047
C31 25V33
C35 0.047
R36 1/4W22
C30 25V33
R35 1/4W22
C29 25V33
-15V
+15V
+5V
R11 4.7K
R12 4.7K
C7 0.047
C6 0.047
C5 0.047
C4 22P
C3 22P
C33 0.047
R1 33K
R2 100
C1 150P
R3 1K
C2 50V0.47
E
SPO
+5
+15
-15
CLK
A2B
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
1
2
3
4
5
6
7
36
40
49
52
58
69

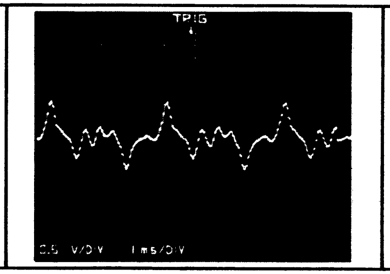
SXPG12101

❹ Pan Flute



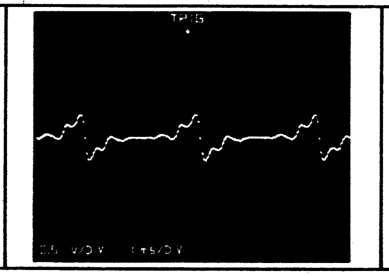
- Upper Key......................C4

❹ Rock Guitar



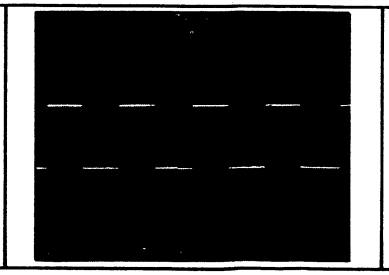
- Upper Key......................C4

❹ Synthe Chopper



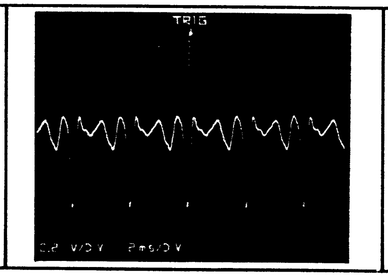
- Upper Key......................C4

❻ Clock Signal



- 2.1KHz (B Key) ~ 3.9KHz (C Key)

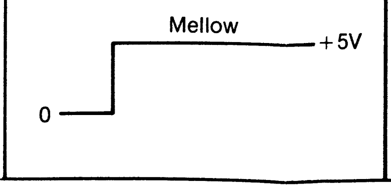
❼ Trumpet



- Upper Key..............................C4
- Harmonic Control................Center

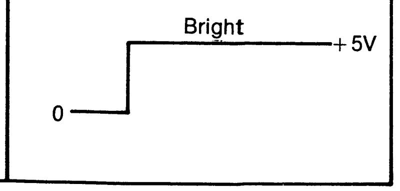
IC4 Pin No. 3

- Harmonic Control

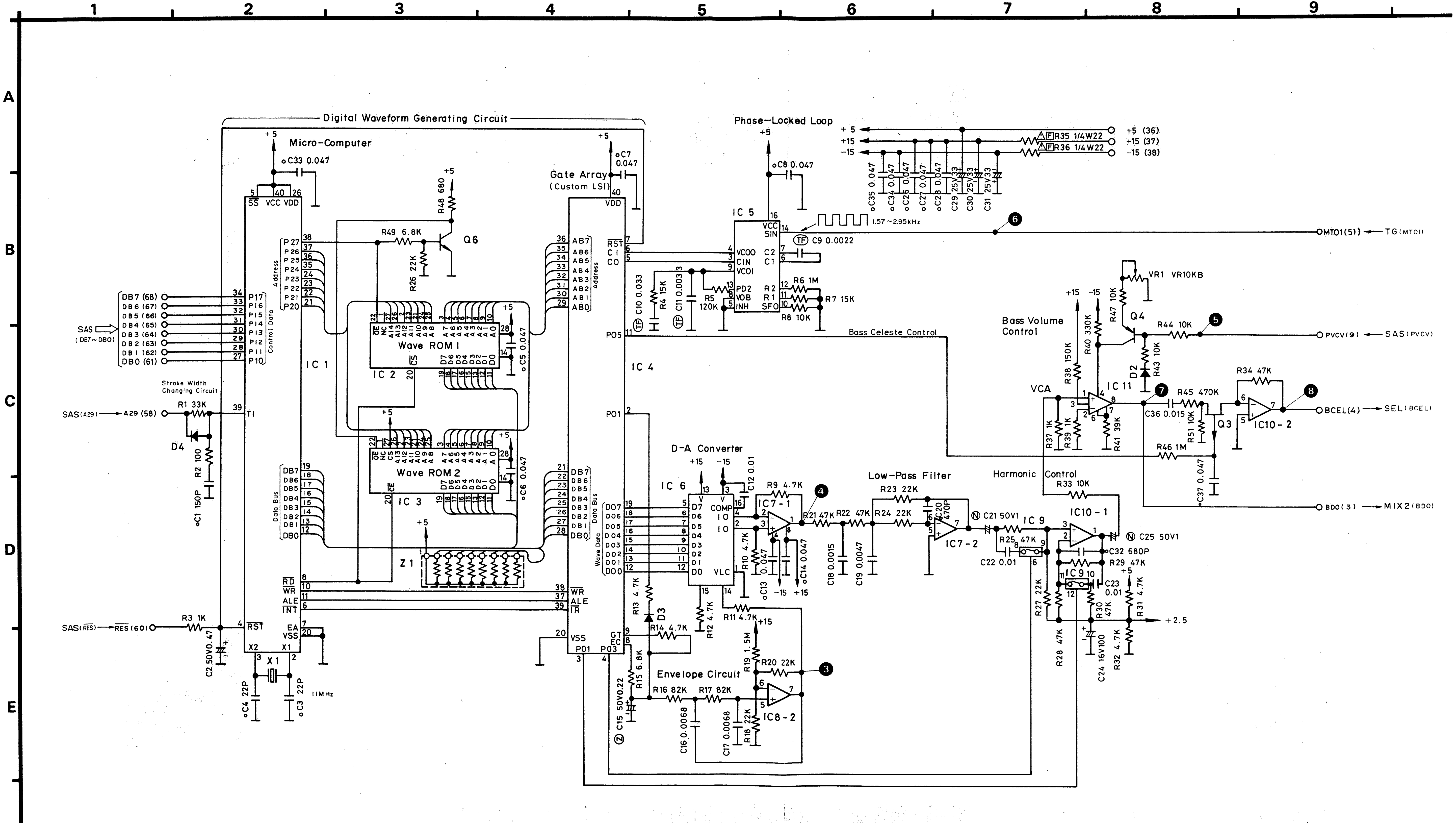


IC4 Pin No. 4

- Harmonic Control



BASS CIRCUIT DIAGRAM (BAS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Digital Waveform Generating Circuit
Micro-Computer
IC 1
C33 0.047
SS VCC VDD
Address
Control Data
Data Bus
DB7 (68)
DB6 (67)
DB5 (66)
DB4 (65)
DB3 (64)
DB2 (63)
DB1 (62)
DB0 (61)
SAS (DB7~DB0)
Strobe Width Changing Circuit
SAS(A29) → A29 (58)
R1 33K
D4
R2 100
C1 150P
SAS(RES) → RES (60)
R3 1K
C2 50V0.47
X1
C4 22P
C3 22P
11MHz
Q6
R48 680
R49 6.8K
R26 22K
Wave ROM 1
IC 2
C5 0.047
Wave ROM 2
IC 3
C6 0.047
Z 1
Gate Array (Custom LSI)
C7 0.047
IC 4
Phase-Locked Loop
IC 5
C8 0.047
1.57~2.95kHz
C9 0.0022
C10 0.033
R4 15K
C11 0.0033
R5 120K
R6 1M
R7 15K
R8 10K
Bass Celeste Control
R35 1/4W22
R36 1/4W22
+5 (36)
+15 (37)
-15 (38)
C35 0.047
C34 0.047
C26 0.047
C27 0.047
C28 0.047
C29 25V33
C30 25V33
C31 25V33
MTO1(51) ← TG(MTO1)
VR1 VR10KB
Bass Volume Control
R47 10K
R40 330K
Q4
R44 10K
PVCV(9) ← SAS(PVCV)
R38 150K
D2
R43 10K
VCA
IC 11
C36 0.015
R45 470K
R34 47K
IC10-2
Q3
R51 10K
BCEL(4) → SEL(BCEL)
R37 1K
R39 1K
R41 39K
R46 1M
C37 0.047
BDO(3) → MIX2(BDO)
Harmonic Control
R33 10K
D-A Converter
IC 6
C12 0.01
R9 4.7K
IC7-1
R10 4.7K
C13 0.047
C14 0.047
Low-Pass Filter
R23 22K
C20 470P
R21 47K
R22 47K
R24 22K
IC7-2
C18 0.0015
C19 0.0047
C21 50V1
IC 9
R25 47K
C22 0.01
IC10-1
C25 50V1
C32 680P
R29 47K
C23 0.01
R27 22K
R28 47K
C24 16V100
R30 47K
R31 4.7K
R32 4.7K
+2.5
R13 4.7K
D3
R14 4.7K
R12 4.7K
R11 4.7K
R19 1.5M
R20 22K
Envelope Circuit
R15 6.8K
C15 50V0.22
R16 82K
R17 82K
C16 0.0068
C17 0.0068
R18 22K
IC8-2
4
3
5
6
7
8

NOTES:

• IC'S

IC1:	SVIG8050H09	IC6:	SVIGUPC624C
IC2:	SVIG3256PE60	IC7, 10:	SVIGM5218L
IC3:	MN23128PGC		(SVIGNJM4558S)
IC4:	SVIG65002019	IC8:	SVIGNJM082D
IC5:	SVIGHD14046B	IC9:	SVIGUPD4066B
		IC11:	SVIGBA6110

• TRANSISTORS

Q3:	2SJ40CD
Q4:	2SA1015GR
Q6:	2SC1047C

• DIODES

D2~4: MA165TA5VT

• COMPONENTS COMBINATION

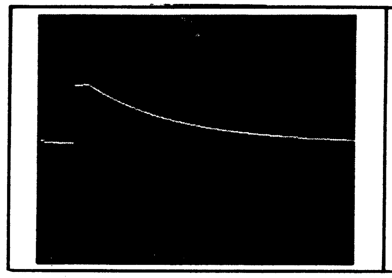
Z1: EXBP88103MM

• CERAMIC OSCILLATOR

X1: SVQGCSA110MT

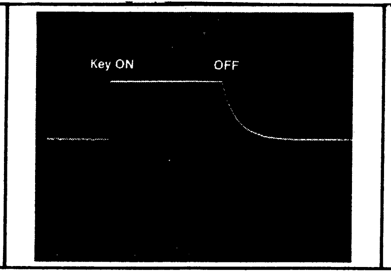
BASS CIRCUIT BOARD (BAS)

③ Envelope Control



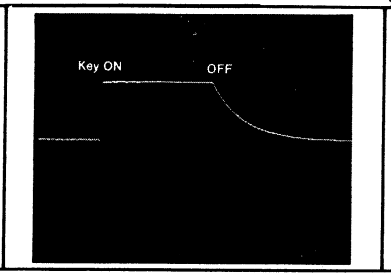
- Chopper Bass • Electric Bass
- Acoustic Bass

③ Envelope Control



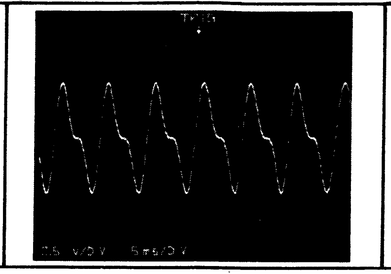
- Tuba

③ Envelope Control



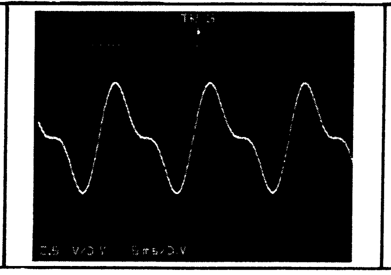
- Bass 8' • Bass 16' • Ensemble Bass
- Pipe Bass I, II • Synthe Bass

④ Bass 8'



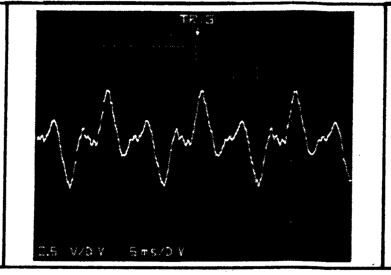
- Pedal Key......................C2

④ Bass 16'



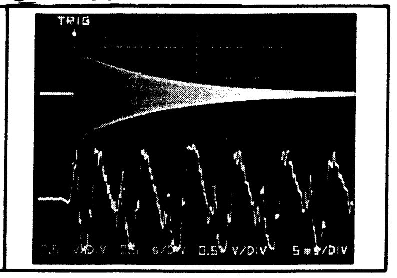
- Pedal Key......................C2

④ Ensemble Bass



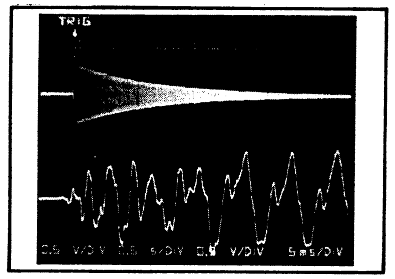
- Pedal Key......................C2

④ Chopper Bass



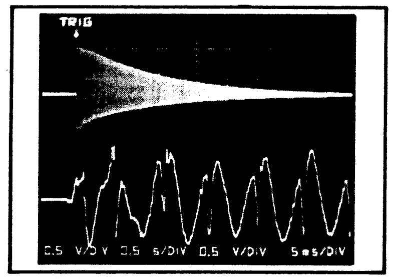
- Pedal Key......................C2
- Bass Sustain................Short

④ Acoustic Bass



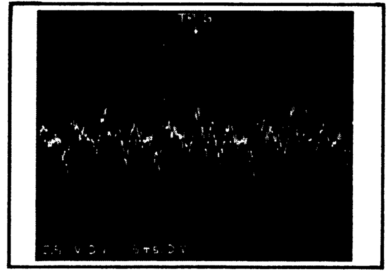
- Pedal Key......................C2
- Bass Sustain................Short

④ Electric Bass

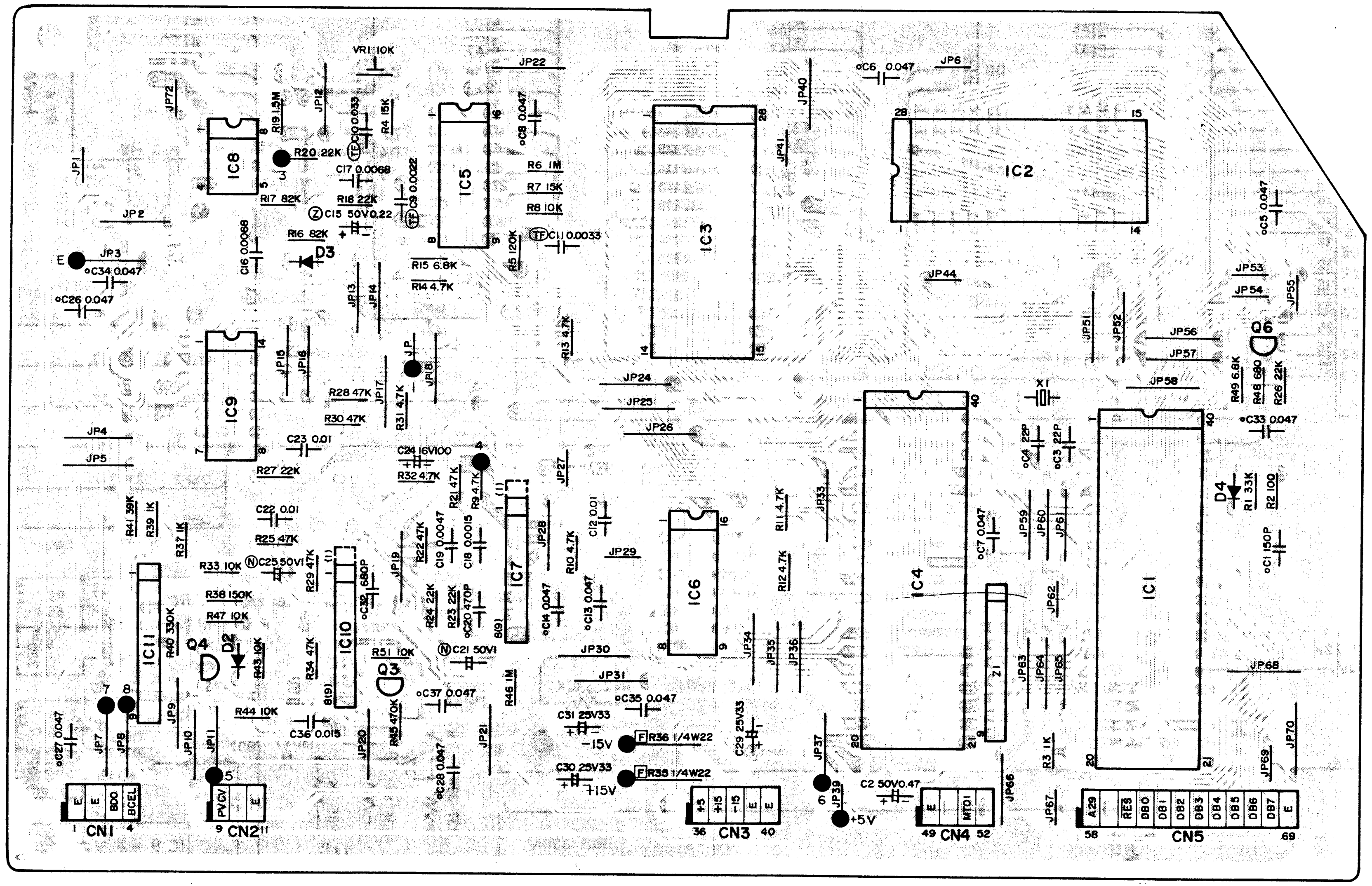


- Pedal Key......................C2
- Bass Sustain................Short

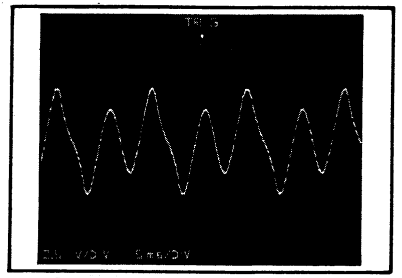
④ Pipe Bass I



- Pedal Key......................C2

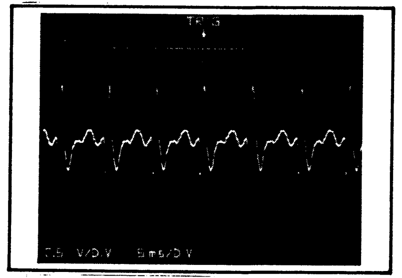

VR1 10K
JP1
JP2
JP3
JP4
JP5
JP6
JP72
JP22
JP40
JP41
JP44
JP53
JP54
JP55
JP56
JP57
JP58
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
R19 1.5M
R20 22K
R4 15K
R17 82K
R18 22K
R16 82K
R6 1M
R7 15K
R8 10K
R5 120K
R15 6.8K
R14 4.7K
R13 4.7K
C17 0.0068
C15 50V0.22
C9 0.0022
C10 0.033
C8 0.047
C11 0.0033
C6 0.047
C5 0.047
C16 0.0068
C34 0.047
C26 0.047
D3
D2
D4
Q3
Q4
Q6
X1
E
R28 47K
R30 47K
R31 4.7K
R27 22K
C23 0.01
C24 16V100
R32 4.7K
R21 47K
R9 4.7K
C22 0.01
R25 47K
R41 39K
R39 1K
R37 1K
R33 10K
C25 50V1
R38 150K
R47 10K
R40 330K
R43 10K
R29 47K
C32 680P
R22 47K
C19 0.0047
C18 0.0015
R24 22K
R23 22K
C20 470P
R34 47K
R51 10K
C21 50V1
C37 0.047
R46 1M
R44 10K
C36 0.015
R45 470K
C28 0.047
C27 0.047
C12 0.01
C14 0.047
C13 0.047
R10 4.7K
R11 4.7K
R12 4.7K
C7 0.047
C4 22P
C3 22P
C33 0.047
R49 6.8K
R48 680
R26 22K
R1 33K
R2 100
C1 150P
R3 1K
Z1
C35 0.047
C31 25V33
C30 25V33
C29 25V33
C2 50V0.47
R36 1/4W22
R35 1/4W22
−15V
+15V
+5V
JP24
JP25
JP26
JP27
JP28
JP29
JP30
JP31
JP33
JP34
JP35
JP36
JP37
JP39
JP59
JP60
JP61
JP62
JP63
JP64
JP65
JP66
JP67
JP68
JP69
JP70
JP7
JP8
JP9
JP10
JP11
JP12
JP13
JP14
JP15
JP16
JP17
JP18
JP19
JP20
JP21
JP51
JP52
1
2
3
4
5
6
7
8
E E BOO BCEL
CN1
PVCV
CN2
+5 +15 −15 E E
CN3
E MTD1
CN4
A29 RES DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
CN5
SXPG12102

④ Pipe Bass II



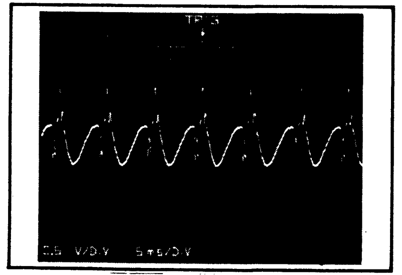
- Pedal Key......................C2

④ Tuba



- Pedal Key......................C2

④ Synthe Bass

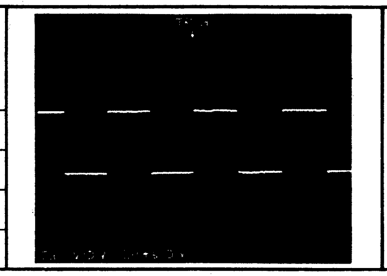


- Pedal Key......................C2

⑤ Bass Volume Control

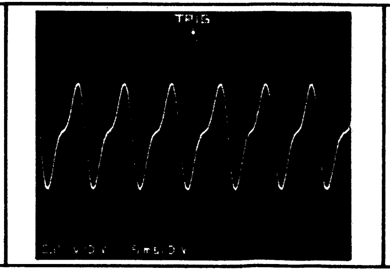
Bass SW / Volume	Bass 8'	Bass 16, chopper Bass, Ensemble Bass, Electric Bass, Pipe Bass II	Acoustic Bass, Pipe Bass I Synthe Bass, Tuba
Step 1	−0.95V	−1.0 V	−1.14V
Step 2	−1.23V	−1.37V	−1.59V
Step 3	−1.73V	−1.96V	−2.30V
Step 4	−2.60V	−2.97V	−3.63V

⑥ Clock Signal



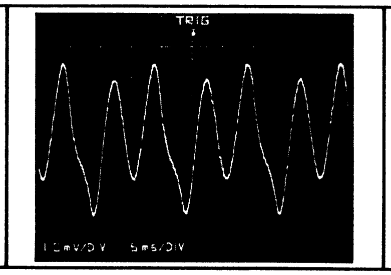
- 1.57KHz (C Key)~2.96KHz (B Key)

⑦ Bass 8'



- Pedal Key............................C2
- Main Vol, Pedal Vol EXP...max

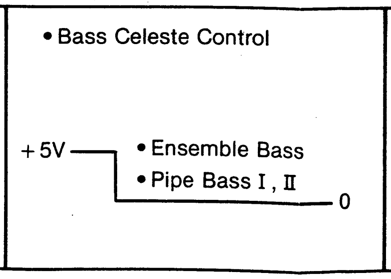
⑧ Pipe Bass II



- Pedal Key............................C2
- Harmonic Control................Center
- Main Vol, Pedal Vol, EXP...max

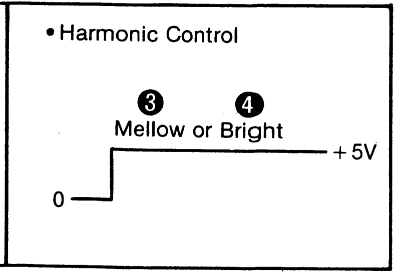
Q3 Gate

- Bass Celeste Control

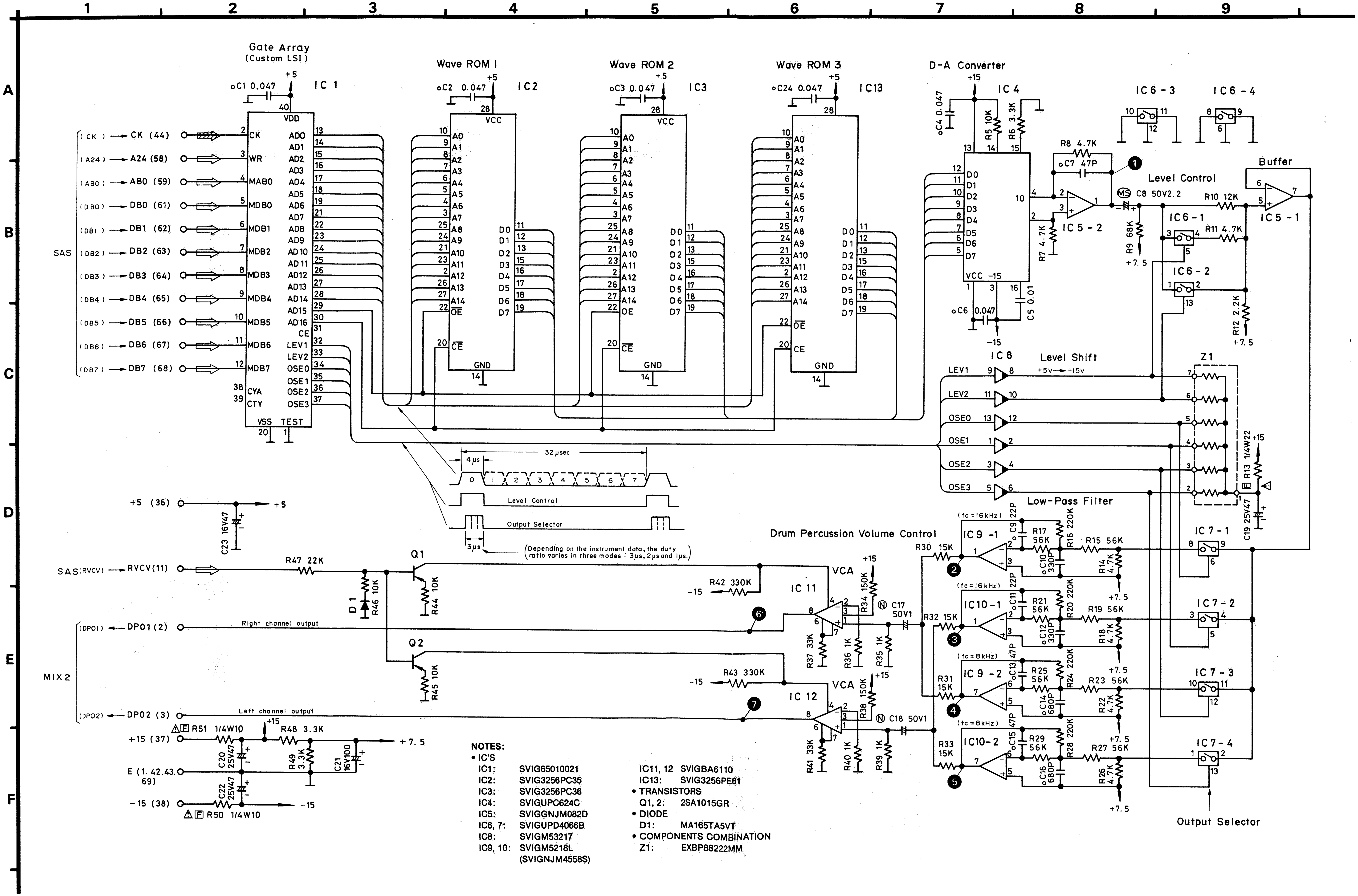

+5V
• Ensemble Bass
• Pipe Bass I, II
0

IC4 Pin No.③, ④

- Harmonic Control


③ ④
Mellow or Bright
+5V
0

DRUM PERCUSSION CIRCUIT DIAGRAM (DP)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Gate Array
(Custom LSI)
IC 1
Wave ROM I
IC2
Wave ROM 2
IC3
Wave ROM 3
IC13
D-A Converter
IC 4
IC6-3
IC6-4
IC6-1
IC6-2
IC5-2
IC5-1
Buffer
Level Control
C8 50V2.2
R10 12K
R11 4.7K
R12 2.2K
R8 4.7K
C7 47P
R5 10K
R6 3.3K
R7 4.7K
R9 68K
C4 0.047
C5 0.01
C6 0.047
C1 0.047
C2 0.047
C3 0.047
C24 0.047
+5
+15
-15
+7.5
VDD
VCC
GND
VSS
TEST
CK
WR
MAB0
MDB0
MDB1
MDB2
MDB3
MDB4
MDB5
MDB6
MDB7
CYA
CTY
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7
AD8
AD9
AD10
AD11
AD12
AD13
AD14
AD15
AD16
CE
LEV1
LEV2
OSE0
OSE1
OSE2
OSE3
SAS
(CK) → CK (44)
(A24) → A24 (58)
(AB0) → AB0 (59)
(DB0) → DB0 (61)
(DB1) → DB1 (62)
(DB2) → DB2 (63)
(DB3) → DB3 (64)
(DB4) → DB4 (65)
(DB5) → DB5 (66)
(DB6) → DB6 (67)
(DB7) → DB7 (68)
IC8
Level Shift
+5V → +15V
LEV1
LEV2
OSE0
OSE1
OSE2
OSE3
Z1
R13 1/4W22
C19 25V47
32 μsec
4 μs
0 1 2 3 4 5 6 7
Level Control
Output Selector
3μs
(Depending on the instrument data, the duty ratio varies in three modes : 3μs, 2μs and 1μs.)
+5 (36)
C23 16V47
SAS (RVCV) → RVCV(11)
R47 22K
D1
R46 10K
Q1
R44 10K
Q2
R45 10K
R42 330K
R43 330K
Drum Percussion Volume Control
VCA
IC 11
IC 12
R34 150K
R38 150K
C17 50V1
C18 50V1
R37 33K
R36 1K
R35 1K
R41 33K
R40 1K
R39 1K
MIX2
(DP01) ← DP01 (2)
Right channel output
(DP02) ← DP02 (3)
Left channel output
R51 1/4W10
R48 3.3K
R49 3.3K
C20 25V47
C21 16V100
C22 25V47
R50 1/4W10
+15 (37)
E (1. 42. 43. 69)
-15 (38)
Low-Pass Filter
(fc=16kHz)
(fc=8kHz)
IC9-1
IC10-1
IC9-2
IC10-2
R30 15K
R32 15K
R31 15K
R33 15K
C9 22P
C11 22P
C13 47P
C15 47P
R17 56K
R21 56K
R25 56K
R29 56K
C10 330P
C12 330P
C14 680P
C16 680P
R16 220K
R20 220K
R24 220K
R28 220K
R15 56K
R19 56K
R23 56K
R27 56K
R14 4.7K
R18 4.7K
R22 4.7K
R26 4.7K
IC7-1
IC7-2
IC7-3
IC7-4
Output Selector
①
②
③
④
⑤
⑥
⑦

NOTES:

- IC'S

IC1:	SVIG65010021
IC2:	SVIG3256PC35
IC3:	SVIG3256PC36
IC4:	SVIGUPC624C
IC5:	SVIGGNJM082D
IC6, 7:	SVIGUPD4066B
IC8:	SVIGM53217
IC9, 10:	SVIGM5218L (SVIGNJM4558S)
IC11, 12	SVIGBA6110
IC13:	SVIG3256PE61

- TRANSISTORS

Q1, 2:	2SA1015GR

- DIODE

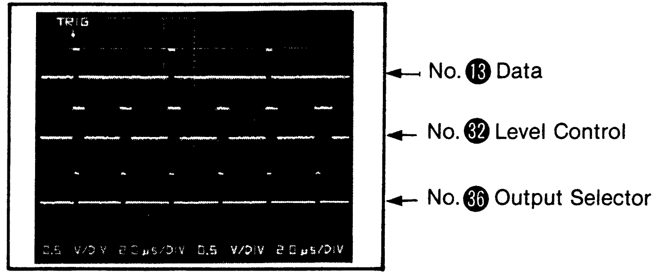
D1:	MA165TA5VT

- COMPONENTS COMBINATION

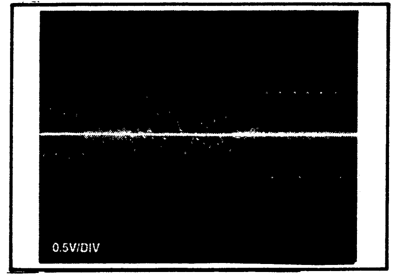
Z1:	EXBP88222MM

DRUM PERCUSSION CIRCUIT BOARD (DP)

IC1—Pin No⑬, ㉜, ㊱

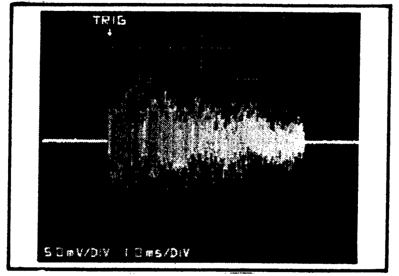


❶



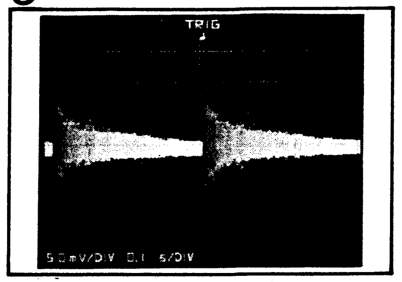
- Rhythm SW..........................Rumba
- Arrange Percussion............I

❷

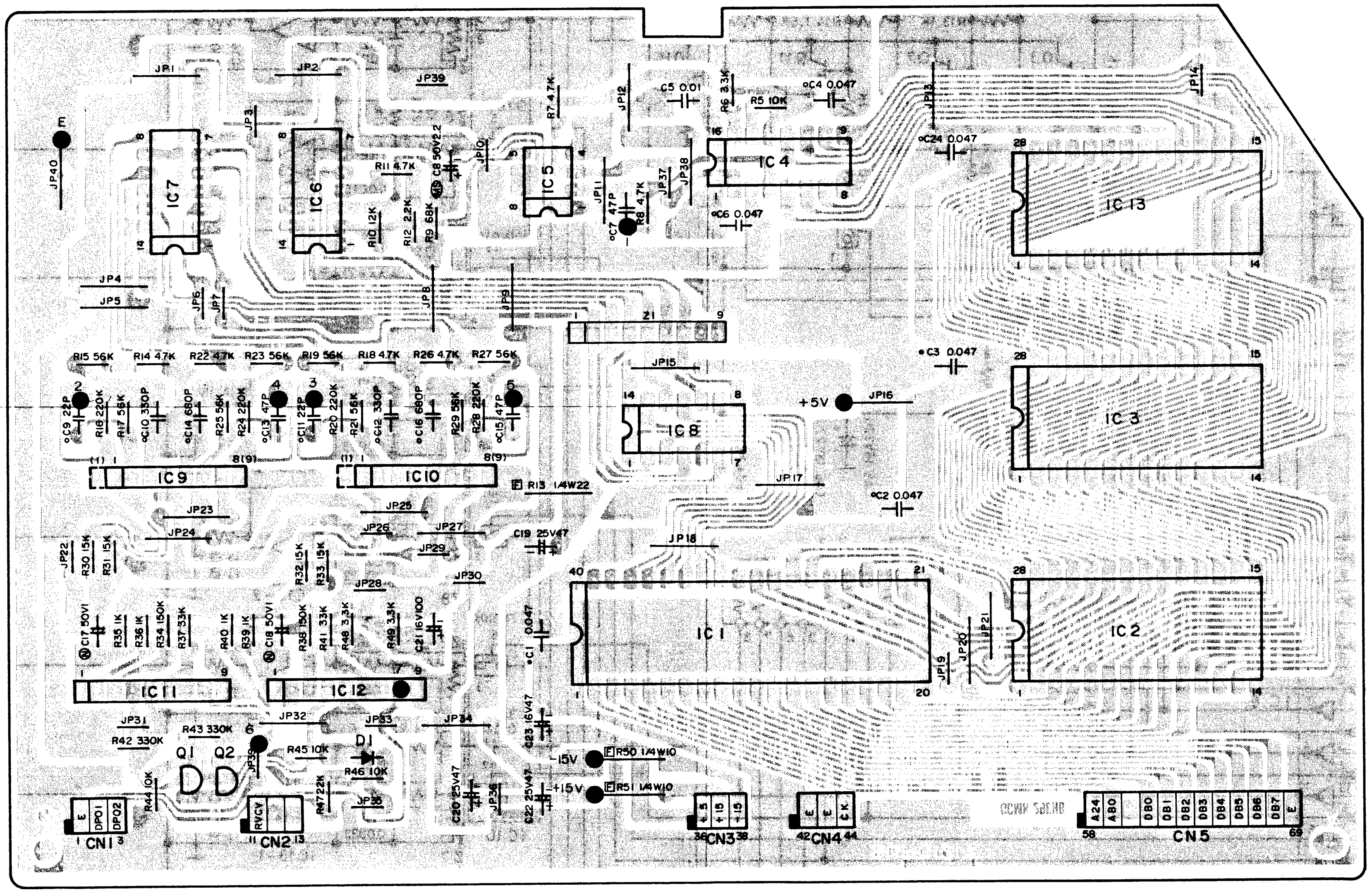


- Rhythm SW..........................Mambo
- Arrange Percussion............I

❸

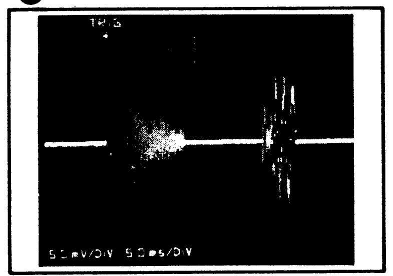


- Rhythm SW..........................Swing II
- Arrange Percussion............I


IC7
IC6
IC5
IC4
IC13
IC3
IC8
IC9
IC10
IC1
IC2
IC11
IC12
Z1
Q1
Q2
D1
+5V
-15V
+15V
CN1
CN2
CN3
CN4
CN5

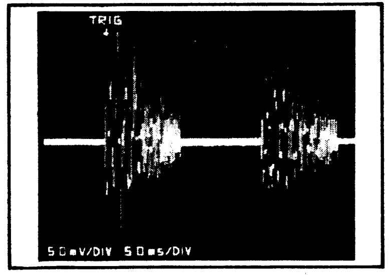
SXPG12171

❹



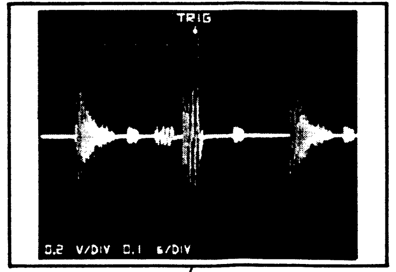
- Rhythm SW..........................8 beat
- Arrange Percussion............I

❺

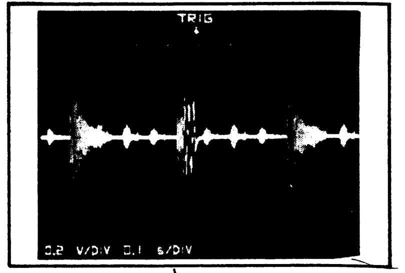


- Rhythm SW..........................Mambo
- Arrange Percussion............I

❻



❼

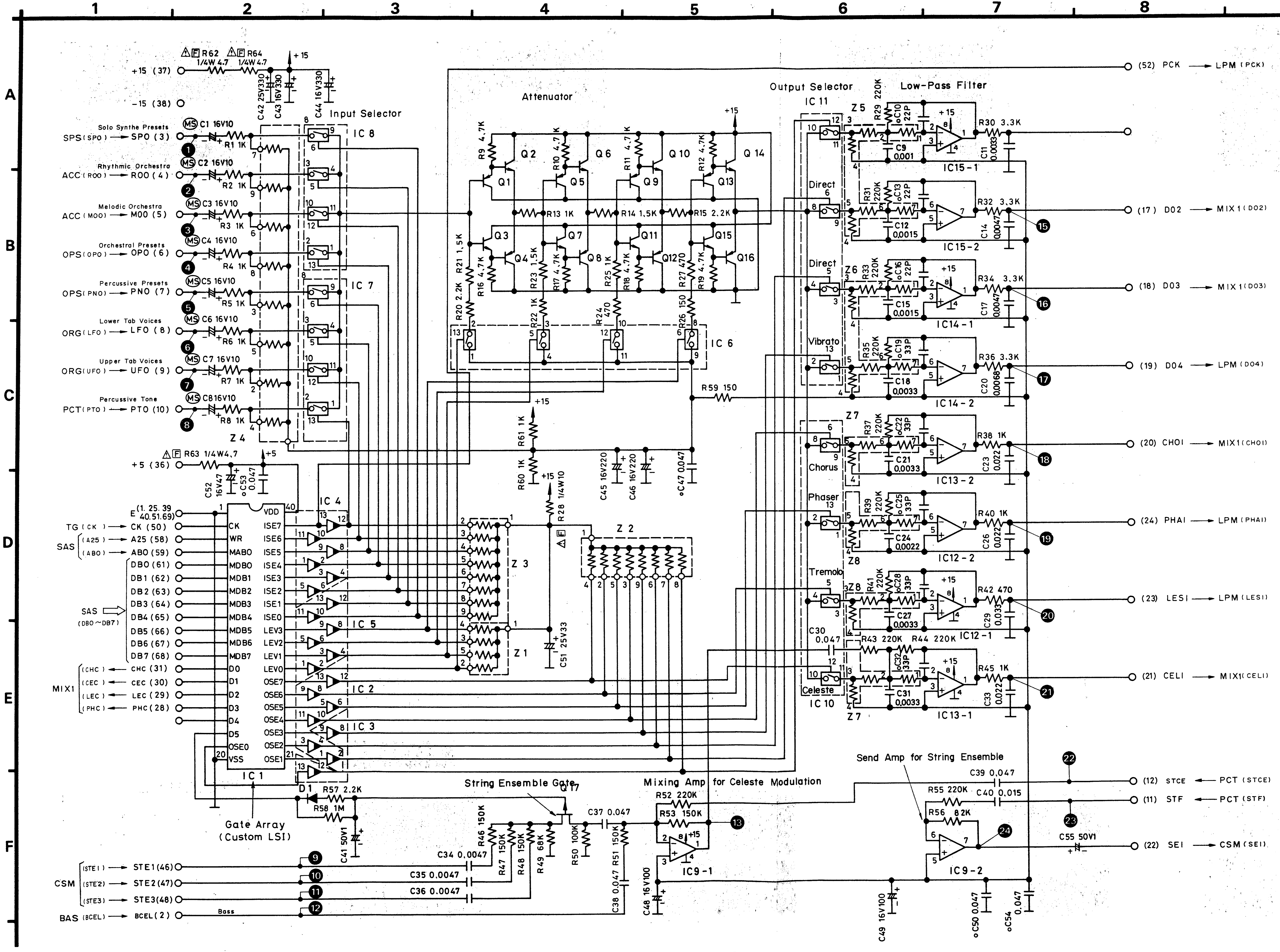


- Rhythm SW..........................16 beat
- Arrange Percussion............I
- Drum Percussion Vol..........max
- Main Vol, EXP......................max

RVCV Terminal

- Main Vol, EXP : Max
- Drum Percussion Volume
  - step 1.................... – 3.36V
  - step 2.................... – 4.93V
  - step 3.................... – 7.56V
  - step 4.................... – 11.81V

SELECTOR CIRCUIT DIAGRAM (SEL)

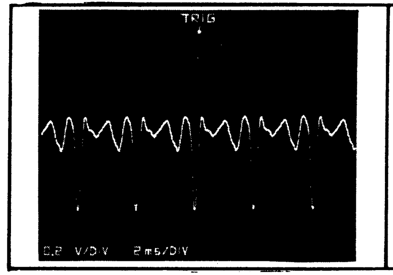

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
+15 (37)
-15 (38)
R62 1/4W 4.7
R64 1/4W 4.7
C42 25V330
C43 16V330
C44 16V330
Input Selector
Attenuator
Output Selector
Low-Pass Filter
Solo Synthe Presets
SPS(SPO) → SPO (3)
Rhythmic Orchestra
ACC(ROO) → ROO (4)
Melodic Orchestra
ACC(MOO) → MOO (5)
Orchestral Presets
OPS(OPO) → OPO (6)
Percussive Presets
OPS(PNO) → PNO (7)
Lower Tab Voices
ORG(LFO) → LFO (8)
Upper Tab Voices
ORG(UFO) → UFO (9)
Percussive Tone
PCT(PTO) → PTO (10)
IC 8
IC 7
IC 6
IC 11
IC 10
Z 4
Z 1
Z 2
Z 3
Z5
Z6
Z7
Z8
Direct
Vibrato
Chorus
Phaser
Tremolo
Celeste
IC15-1
IC15-2
IC14-1
IC14-2
IC13-2
IC12-2
IC12-1
IC13-1
(52) PCK → LPM (PCK)
(17) DO2 → MIX1 (DO2)
(18) DO3 → MIX1 (DO3)
(19) DO4 → LPM (DO4)
(20) CHOI → MIX1 (CHOI)
(24) PHAI → LPM (PHAI)
(23) LESI → LPM (LESI)
(21) CELI → MIX1 (CELI)
(12) STCE ← PCT (STCE)
(11) STF ← PCT (STF)
(22) SEI → CSM (SEI)
+5 (36)
R63 1/4W 4.7
TG (CK) → CK (50)
SAS (A25) → A25 (58)
(ABO) → ABO (59)
SAS (DBO~DB7)
DBO (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
MIX1
CHC (31)
CEC (30)
LEC (29)
PHC (28)
E (1. 25. 39 40.51.69)
IC 1
Gate Array (Custom LSI)
IC 4
IC 5
IC 2
IC 3
D1
String Ensemble Gate
Q17
Mixing Amp for Celeste Modulation
Send Amp for String Ensemble
IC9-1
IC9-2
CSM
STE1 (46)
STE2 (47)
STE3 (48)
BAS (BCEL) → BCEL (2)
Bass

NOTES:

• IC'S	
IC1:	SVIG65002018
IC2~5:	SVIGM53217
IC6~8, 10, 11:	SVIGUPD4066B
IC9, 12~15:	SVIGM5218L (SVIGNJM4558S)
• TRANSISTORS	
Q1, 4, 5, 8, 9, 12, 13, 16:	2SA1015GR
Q2, 3, 6, 7, 10, 11, 14, 15:	2SC1815GR
Q17:	2SJ40CD
• DIODE	
D1:	MA165TA5VT
• COMPONENTS	COMBINATIONS
Z1:	EXBP84222MM
Z2, 3:	EXBP88222MM
Z4:	EXBP88102MM
Z5~8:	SREG6A0511MM

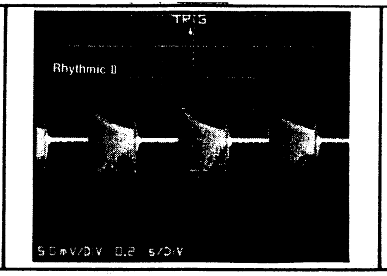
SELECTOR CIRCUIT BOARD (SEL)

❶ Solo Synthe Presets



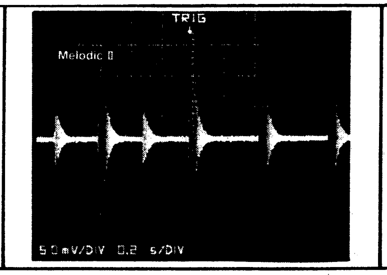
- U. Solo Synthe Presets.......Trumpet
- Harmonic Control................Center
- Upper Key.............................C4

❷ Rhythmic Orchestra



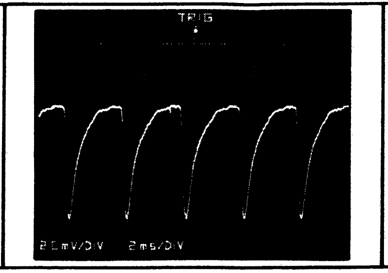
- Rhythm..................................march
- Arrange Percussion.............I

❸ Melodic Orchestra



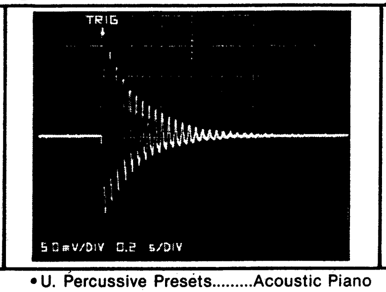
- One-Finger............................C Key

❹ Orchestral Presets



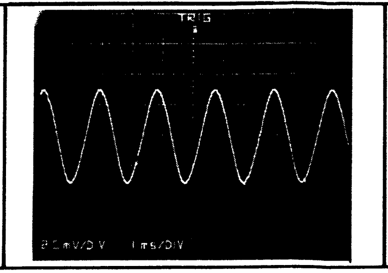
- U. Orchestral Presets..........Trombone
- Harmonic Control................Center
- Upper Key.............................C4

❺ Percussive Presets



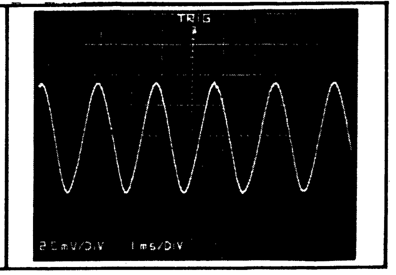
- U. Percussive Presets.........Acoustic Piano
- Harmonic Control................Center
- Upper Key.............................C4

❻ Lower Tab Voices



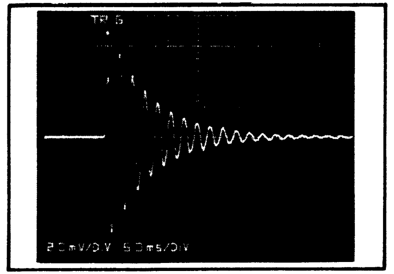
- Lower Tab.............................Flute 8′
- Lower Key.............................C4

❼ Upper Tab Voices



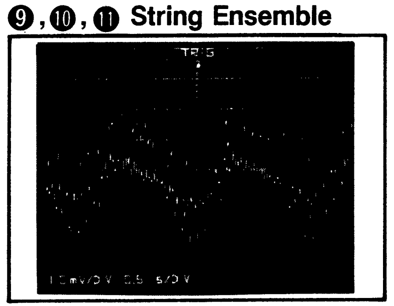
- Upper Tab.............................Flute 8′
- Upper Key.............................C4

❽ Percussive Tone



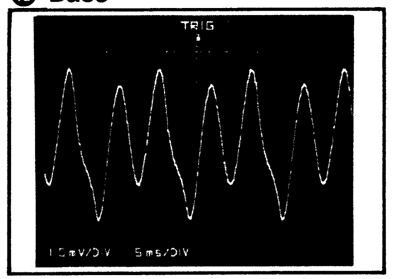
- Percussive Tone..................4′
- Upper Key.............................C4

❾, ❿, ⓫ String Ensemble

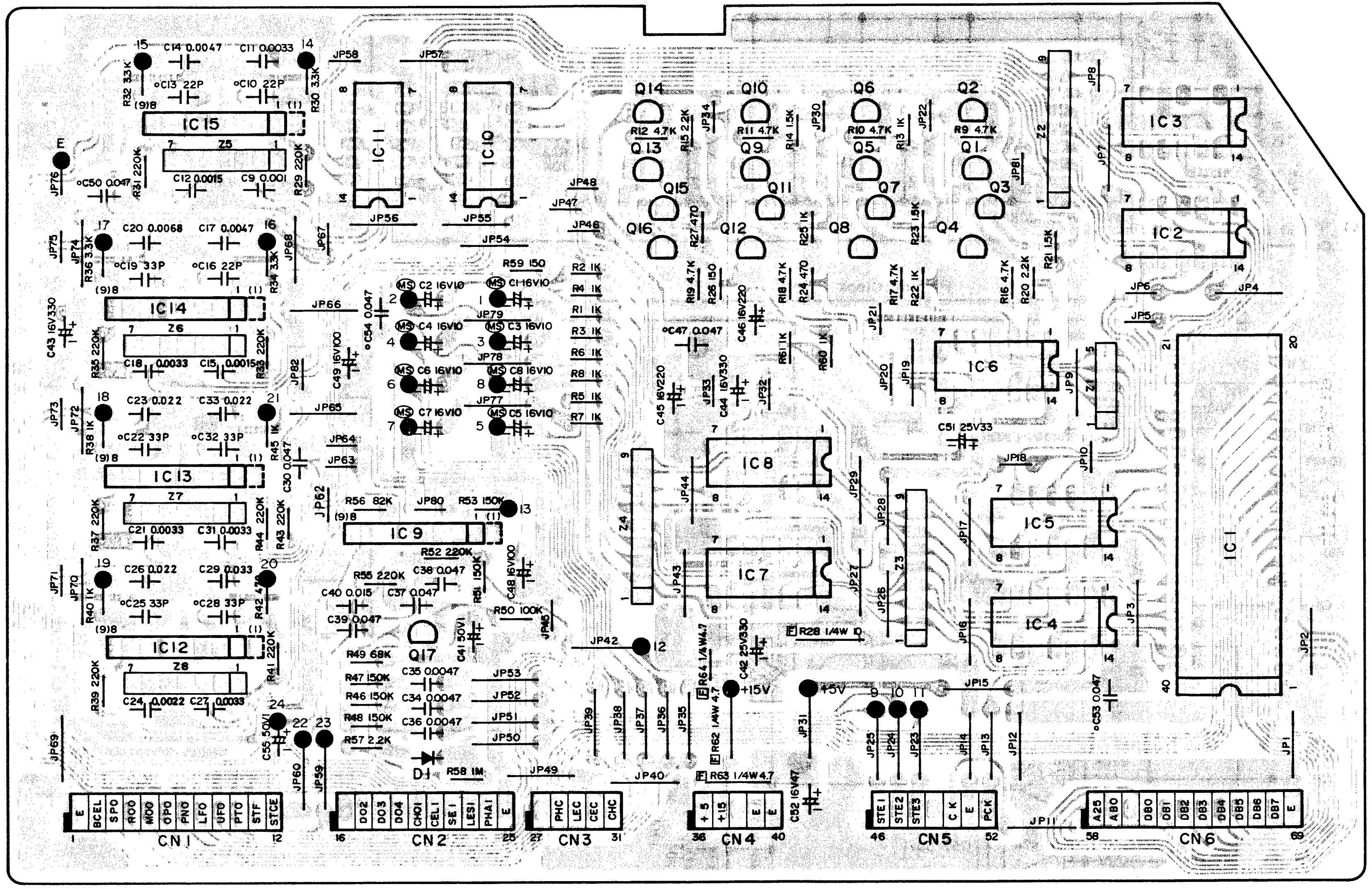


- U. String Ensemble.............Violin
- Volume.....max • Upper Key.....C4

⓬ Bass

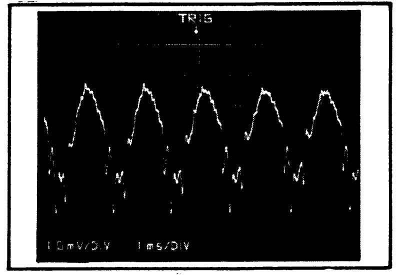


- Bass.......................................Pipe Bass II
- Pedal Key.............................C2
- Harmonic Control................Center
- Main Vol, EXP, Bass Vol.....max


IC15
IC14
IC13
IC12
IC11
IC10
IC9
IC8
IC7
IC6
IC5
IC4
IC3
IC2
IC1
Z1
Z2
Z3
Z4
Z5
Z6
Z7
Z8
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
D1
E
+15V
+5V
CN1
E
BCEL
SPO
ROO
MOO
OPO
PNO
LFO
UFO
PTO
STF
STCE
1
12
CN2
DO2
DO3
DO4
CHO1
CEL1
SE1
LES1
PHA1
E
16
25
CN3
PHC
LEC
CEC
CHC
27
31
CN4
+5
+15
E
E
36
40
CN5
STE1
STE2
STE3
CK
E
PCK
46
52
CN6
A25
ABO
DBO
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
58
69

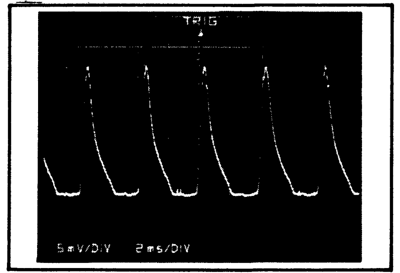
SXPGB12091

⓭



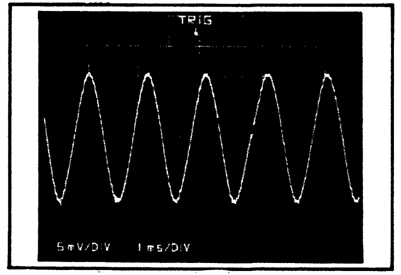
- U. String Ensemble.............Violin
- Volume..................................max
- Upper Key.............................C4

⓯ Direct



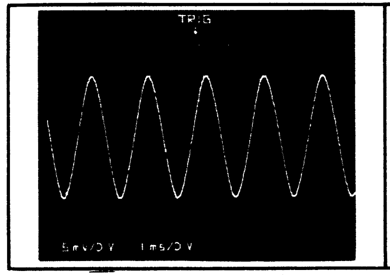
- U. Orchestral Presets..........Trombone
- Harmonic Control................Center
- Volume.....max • Upper Key.....C4

⓰ Direct



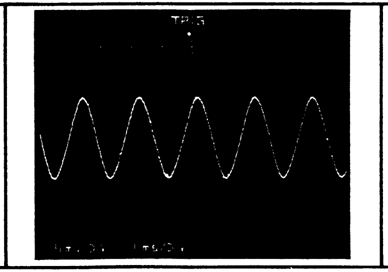
- Upper Tab......................Flute 8′
- Volume...........................max
- Upper Key......................C4

⓱ Vibrato



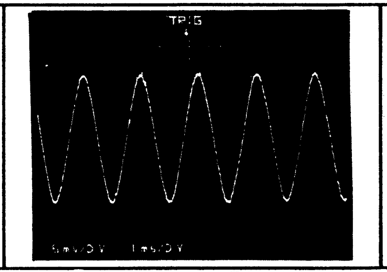
- Upper Tab......................Flute 8′
- Volume...........................max
- Vibrato...........................ON
- Upper Key......................C4

⓲ Chorus



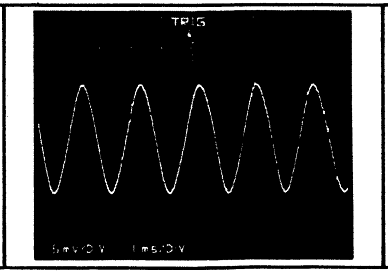
- Upper Tab......................Flute 8′
- Volume...........................max
- Chorus...........................U. Tab ON
- Upper Key......................C4

⓳ Phaser



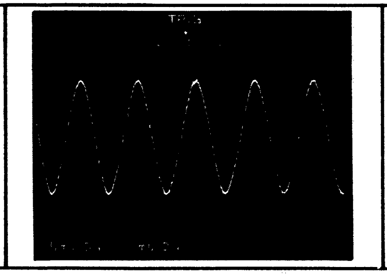
- Upper Tab......................Flute 8′
- Volume...........................max
- Phaser...........................U. Tab ON
- Upper Key......................C4

⓴ Tremolo



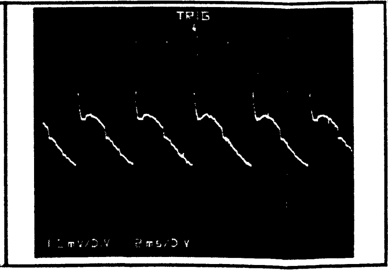
- Upper Tab......................Flute 8′
- Volume...........................max
- Tremolo..........................U. Tab ON
- Upper Key......................C4

㉑ Celeste



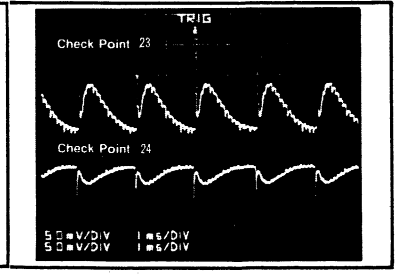
- Upper Tab......................Flute 8′
- Volume...........................max
- Celeste...........................U. Tab ON
- Upper Key......................C4

㉒



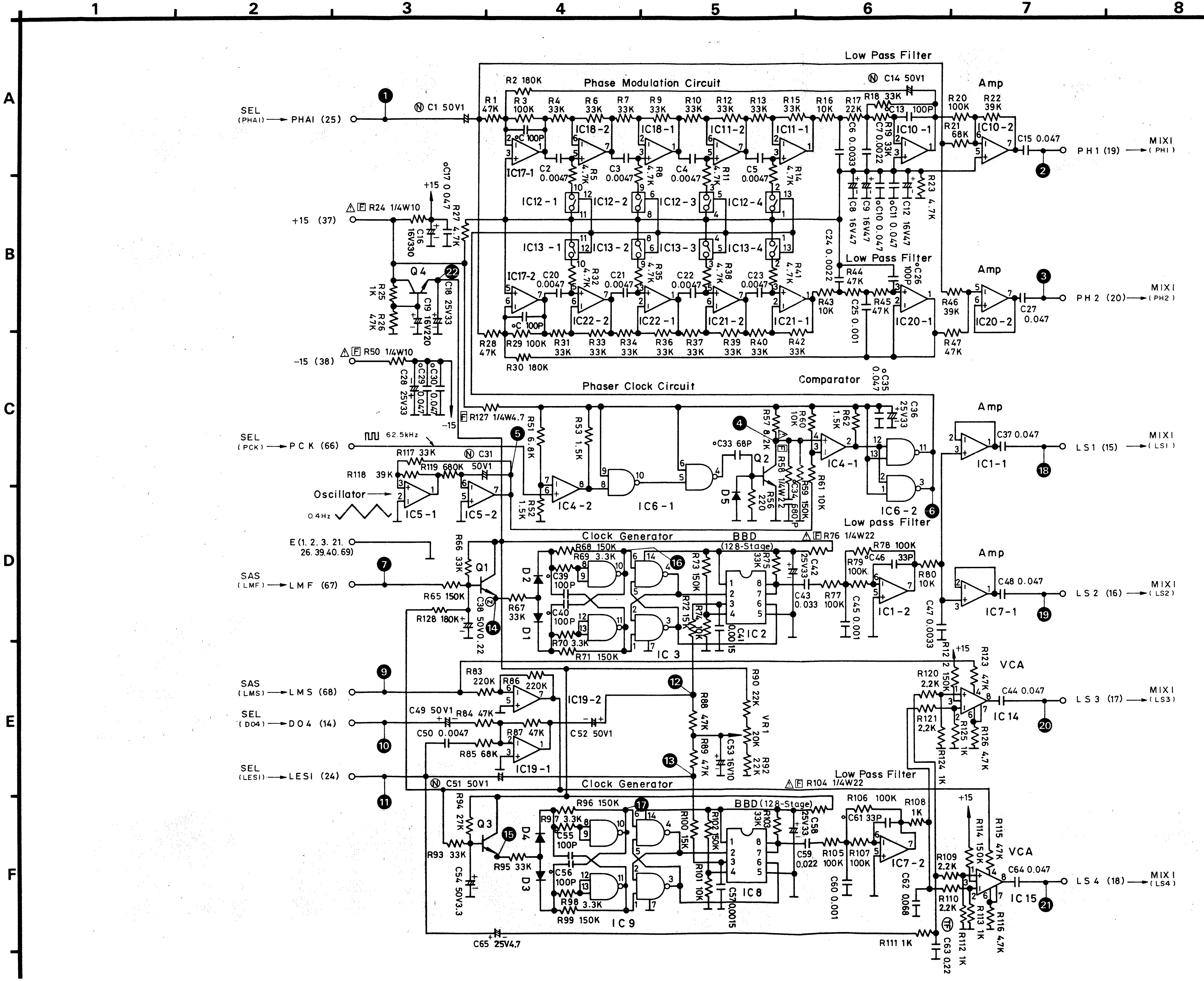
- U. String Ensemble.............Cello
- Volume..................................max
- Upper Key.............................C4

㉓ ㉔



- U. String Ensemble..............Violin
- Volume.................................max
- Upper Key.............................C4

TREMOLO & PHASER MODULATION CIRCUIT DIAGRAM (LPM)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Phase Modulation Circuit
Low Pass Filter
Amp
SEL (PHAI) → PHAI (25)
+15 (37)
–15 (38)
SEL (PCK) → P C K (66)
62.5kHz
Oscillator
0.4Hz
E (1. 2. 3. 21. 26. 39.40. 69)
SAS (LMF) → L M F (67)
SAS (LMS) → L M S (68)
SEL (D04) → D O 4 (14)
SEL (LESI) → LESI (24)
PH 1 (19) → MIXI (PHI)
PH 2 (20) → MIXI (PH2)
LS 1 (15) → MIXI (LS1)
LS 2 (16) → MIXI (LS2)
LS 3 (17) → MIXI (LS3)
LS 4 (18) → MIXI (LS4)
Phaser Clock Circuit
Comparator
Clock Generator
BBD (128-Stage)
Low pass Filter
VCA
IC17-1
IC17-2
IC18-2
IC18-1
IC11-2
IC11-1
IC10-1
IC10-2
IC12-1
IC12-2
IC12-3
IC12-4
IC13-1
IC13-2
IC13-3
IC13-4
IC22-2
IC22-1
IC21-2
IC21-1
IC20-1
IC20-2
IC5-1
IC5-2
IC4-2
IC4-1
IC6-1
IC6-2
IC1-1
IC1-2
IC7-1
IC7-2
IC2
IC 3
IC8
IC 9
IC 14
IC 15
IC19-1
IC19-2
Q1
Q2
Q3
Q4
D1
D2
D3
D4
D5
VR1 20K
R1 47K
R2 180K
R3 100K
R4 33K
R6 33K
R7 33K
R9 33K
R10 33K
R12 33K
R13 33K
R15 33K
R16 10K
R17 22K
R18 33K
R19 33K
R20 100K
R21 68K
R22 39K
R23 4.7K
R24 1/4W10
R25 1K
R26 47K
R27 4.7K
R28 47K
R29 100K
R30 180K
R43 10K
R44 47K
R45 47K
R46 39K
R47 47K
R50 1/4W10
R127 1/4W4.7
R51 6.8K
R52 1.5K
R53 1.5K
R57 8.2K
R60 10K
R61 10K
R62 1.5K
R117 33K
R118 39K
R119 680K
R66 33K
R65 150K
R128 180K
R67 33K
R68 150K
R69 3.3K
R70 3.3K
R71 150K
R76 1/4W22
R78 100K
R79 100K
R80 10K
R77 100K
R83 220K
R84 47K
R85 68K
R86 220K
R87 47K
R88 47K
R89 47K
R90 22K
R92 22K
R93 33K
R94 27K
R95 33K
R96 150K
R98 3.3K
R99 150K
R104 1/4W22
R106 100K
R108 1K
R105 100K
R107 100K
R111 1K
R120 2.2K
R121 2.2K
R109 2.2K
R110 2.2K
C1 50V1
C14 50V1
C15 0.047
C27 0.047
C37 0.047
C48 0.047
C44 0.047
C64 0.047
C33 68P
C39 100P
C40 100P
C55 100P
C56 100P
C43 0.033
C45 0.001
C47 0.0033
C49 50V1
C50 0.0047
C51 50V1
C52 50V1
C53 16V10
C54 50V3.3
C59 0.022
C60 0.001
C61 33P
C62 0.068
C63 0.22
C65 25V4.7
+15
–15

NOTES:
- IC'S

IC1, 5, 7, 10, 11, 17~22:	SVIGM5218L (SVIGNJM4558S)
IC2, 8:	MN3006
IC3, 6, 9:	SVIGMSM4011
IC4:	AN6913
IC12, 13:	SVIGUPD4066B
IC14, 15:	SVIGBA6110

- TRANSISTORS

Q1~4:	2SC2320LFG

- DIODES

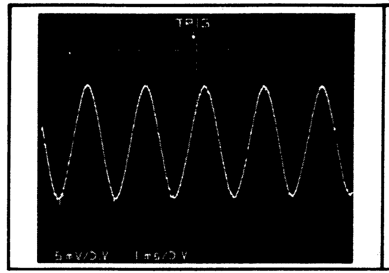
D1~5:	MA165TA5VT

TREMOLO & PHASER MODULATION CIRCUIT BOARD (LPM)

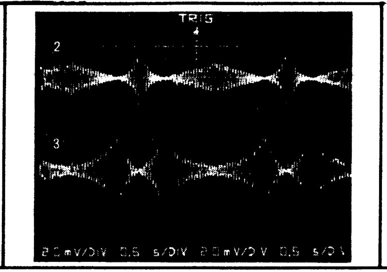
1 2 3 4 5 6 7 8 9

A B C D E F

❶



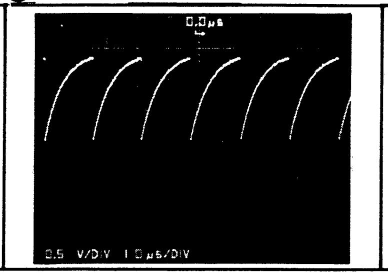
❷,❸



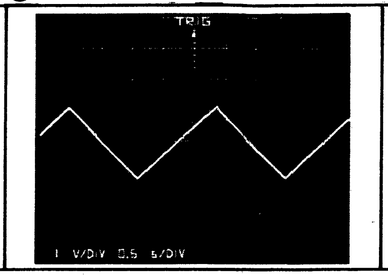
- Upper Tab......................Flute 8′
- Volume...........................max

- Phaser...........................U. Tab ON
- Upper Key......................C4

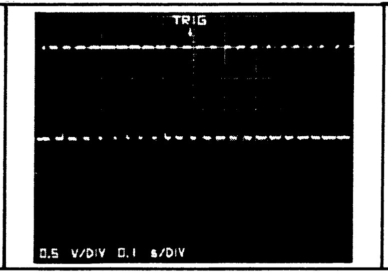
❹ 62.5KHz



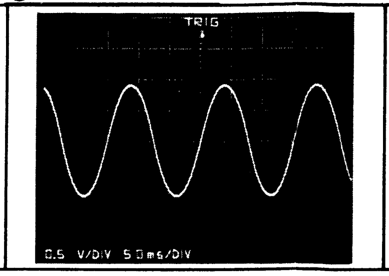
❺ 0.4Hz



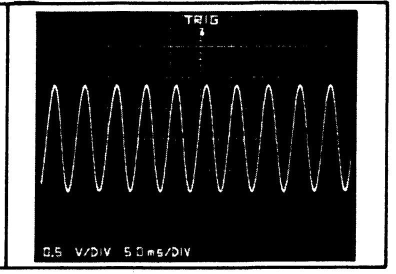
❻



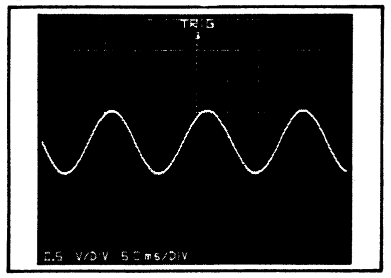
❼ Vibrato: 6.6Hz



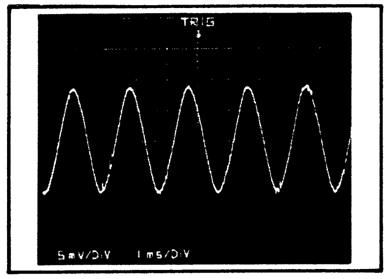
❼ Tremolo: Fast



❾ Tremolo: Fast

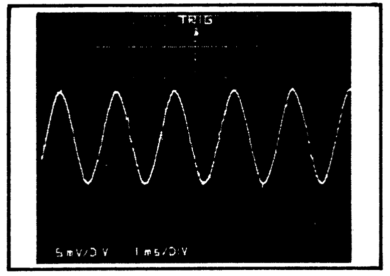


❿ Vibrato

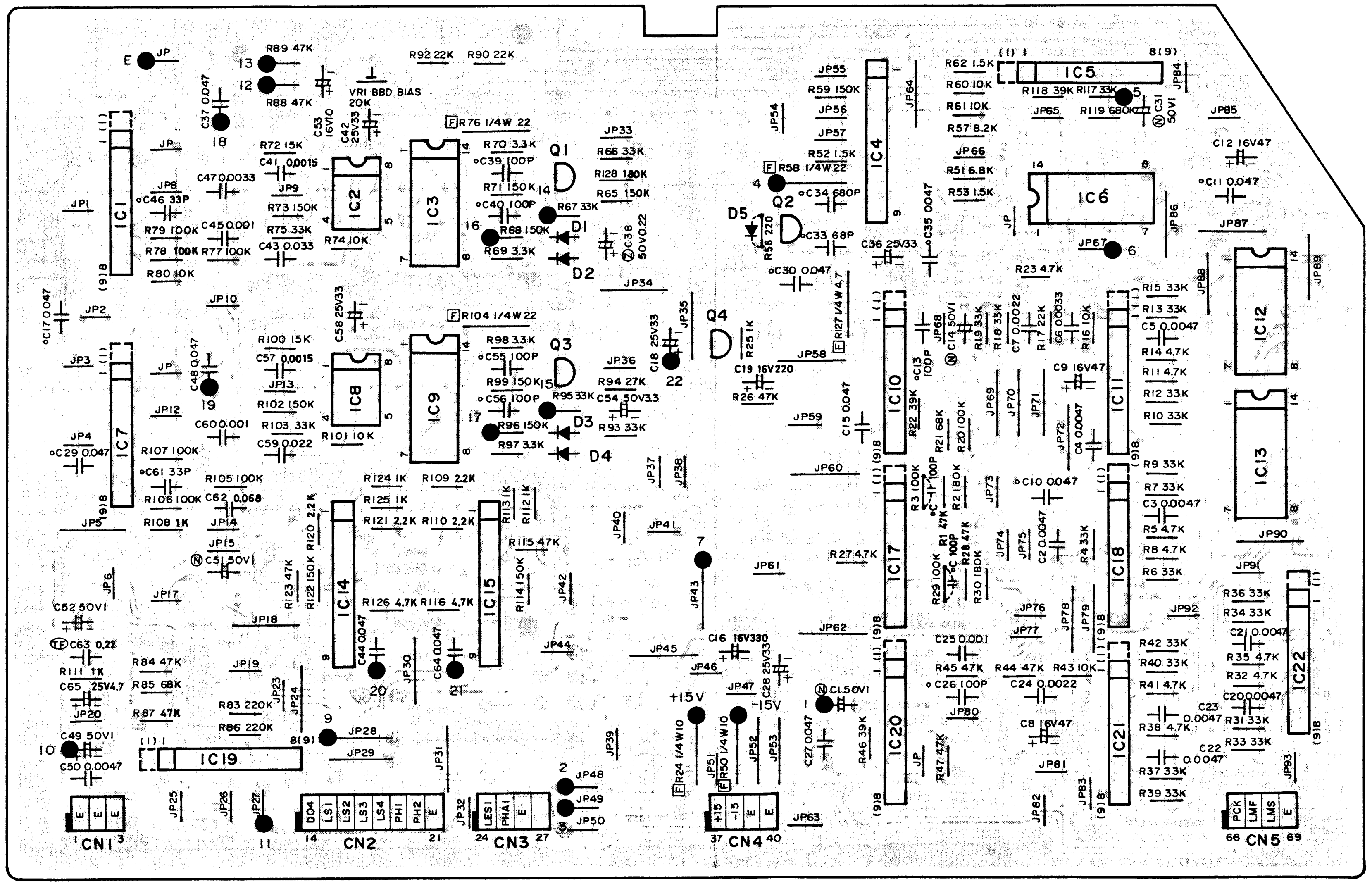


- Upper Tab.....Flute 8′
- Upper Key.....C4
- Volume.....max
- Vibrato.....ON

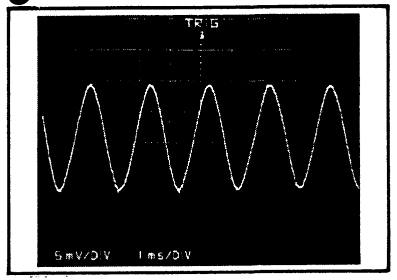
⓫ Tremolo



- Upper Tab.....Flute 8′
- Volume.....max
- Upper Key.....C4
- Tremolo.....U. Tab ON

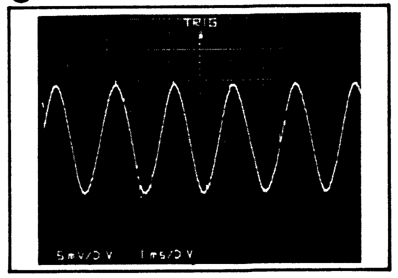

E
JP
13
12
R89 47K
R88 47K
VR1 BBD BIAS
20K
R92 22K
R90 22K
C37 0.047
18
C53 16V10
C42 25V33
F R76 1/4W 22
JP33
R66 33K
R128 180K
R65 150K
Q1
14
IC1
IC2
IC3
JP1
JP8
oC46 33P
C47 0.0033
R72 15K
C41 0.0015
JP9
R73 150K
R75 33K
C45 0.001
R79 100K
R78 100K
R77 100K
C43 0.033
R74 10K
R80 10K
R70 3.3K
oC39 100P
R71 150K
oC40 100P
R67 33K
16
R68 150K
R69 3.3K
D1
D2
C38 50V0.22
JP34
oC17 0.047
JP2
JP10
C58 25V33
F R104 1/4W 22
JP3
IC7
JP
C48 0.047
19
R100 15K
C57 0.0015
JP13
IC8
IC9
R98 3.3K
oC55 100P
Q3
R99 150K
15
oC56 100P
R95 33K
17
R96 150K
R97 3.3K
D3
D4
JP36
R94 27K
C54 50V3.3
R93 33K
C18 25V33
22
JP35
Q4
JP12
R102 150K
C60 0.001
R103 33K
C59 0.022
R101 10K
JP4
oC29 0.047
R107 100K
oC61 33P
R105 100K
R106 100K
C62 0.068
R108 1K
JP14
JP5
JP15
C51 50V1
JP6
JP17
JP18
C52 50V1
C63 0.22
R111 1K
C65 25V4.7
JP20
C49 50V1
10
C50 0.0047
R84 47K
R85 68K
R87 47K
JP19
R83 220K
R86 220K
JP23
JP24
IC19
(1) 1
8(9)
9
JP28
JP29
R124 1K
R125 1K
R121 2.2K
R109 2.2K
R110 2.2K
R120 2.2K
R122 150K
R123 47K
IC14
IC15
R113 1K
R112 1K
R115 47K
R114 150K
R126 4.7K
R116 4.7K
C44 0.047
20
C64 0.047
21
JP30
JP31
JP37
JP38
JP40
JP41
JP42
JP43
JP44
JP45
JP46
7
C16 16V330
C28 25V33
JP47
+15V
-15V
JP39
JP48
JP49
JP50
2
3
JP25
JP26
JP27
11
E E E
1 CN1 3
DO4 LS1 LS2 LS3 LS4 PH1 PH2 E
14 CN2 21
JP32
LES1 PHA1 E
24 CN3 27
F R24 1/4W10
JP51
F R50 1/4W10
JP52
JP53
+15 -15 E E
37 CN4 40
JP63
JP55
R59 150K
JP56
JP57
R52 1.5K
JP54
F R58 1/4W22
4
oC34 680P
Q2
D5
R56 220
oC33 68P
oC30 0.047
C36 25V33
oC35 0.047
IC4
JP64
R62 1.5K
R60 10K
R61 10K
R57 8.2K
JP66
R51 6.8K
R53 1.5K
IC5
(1) 1
8(9)
R118 39K
R117 33K
5
R119 680K
C31 50V1
JP65
JP84
JP85
C12 16V47
oC11 0.047
IC6
14
8
1
7
JP
JP67
6
JP86
JP87
R23 4.7K
F R127 1/4W 4.7
R25 1K
C19 16V220
R26 47K
JP58
JP59
C15 0.047
IC10
oC13 100P
JP68
C14 50V1
R19 33K
R18 33K
C7 0.0022
R17 22K
C6 0.0033
R16 10K
R22 39K
R21 68K
R20 100K
JP69
JP70
JP71
JP72
C4 0.0047
C9 16V47
IC11
R15 33K
R13 33K
C5 0.0047
R14 4.7K
R11 4.7K
R12 33K
R10 33K
JP88
JP89
IC12
IC13
JP60
IC17
R3 100K
oC 100P
R2 180K
R1 47K
oC 100P
R28 47K
R29 100K
R30 180K
JP73
oC10 0.047
JP74
JP75
C2 0.0047
R4 33K
IC18
R9 33K
R7 33K
C3 0.0047
R5 4.7K
R8 4.7K
R6 33K
JP90
JP91
R27 4.7K
JP61
JP62
JP76
JP77
JP78
JP79
JP92
R36 33K
R34 33K
C21 0.0047
R35 4.7K
R32 4.7K
C20 0.0047
IC22
C25 0.001
R45 47K
R44 47K
R43 10K
oC26 100P
C24 0.0022
JP80
C1 50V1
C27 0.047
R46 39K
IC20
JP
R47 47K
C8 16V47
JP81
JP82
JP83
IC21
R42 33K
R40 33K
R41 4.7K
C23 0.0047
R38 4.7K
C22 0.0047
R37 33K
R39 33K
R31 33K
R33 33K
JP93
PCK LMF LMS E
66 CN5 69

⓬



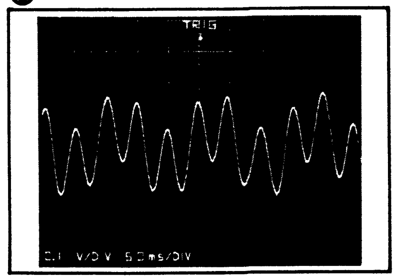
- Upper Tab.....Flute 8′
- Upper Key.....C4
- Volume.....max
- Vibrato.....ON

⓭



- Upper Tab.....Flute 8′
- Volume.....max
- Upper Key.....C4
- Tremolo.....U. Tab ON

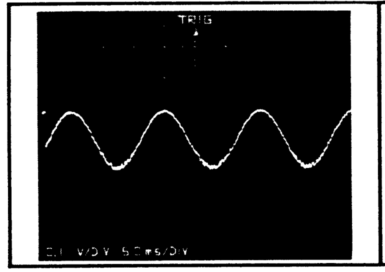
⓮



- Tremolo..........................Fast

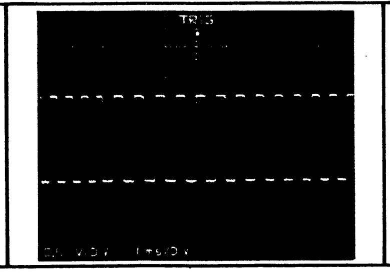
SXPGA12331

⓯



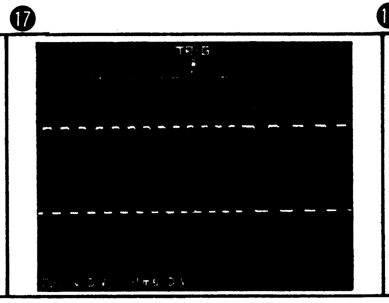
- Tremolo.................:.......Fast

⓰



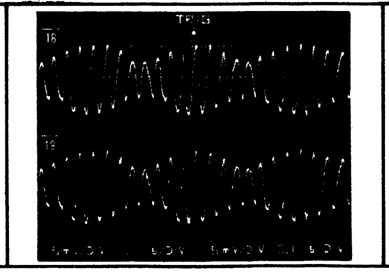
- Tremolo..........................Fast

⓱

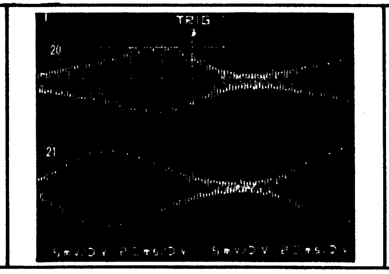


- Tremolo..........................Fast

⓲, ⓳



⓴, ㉑

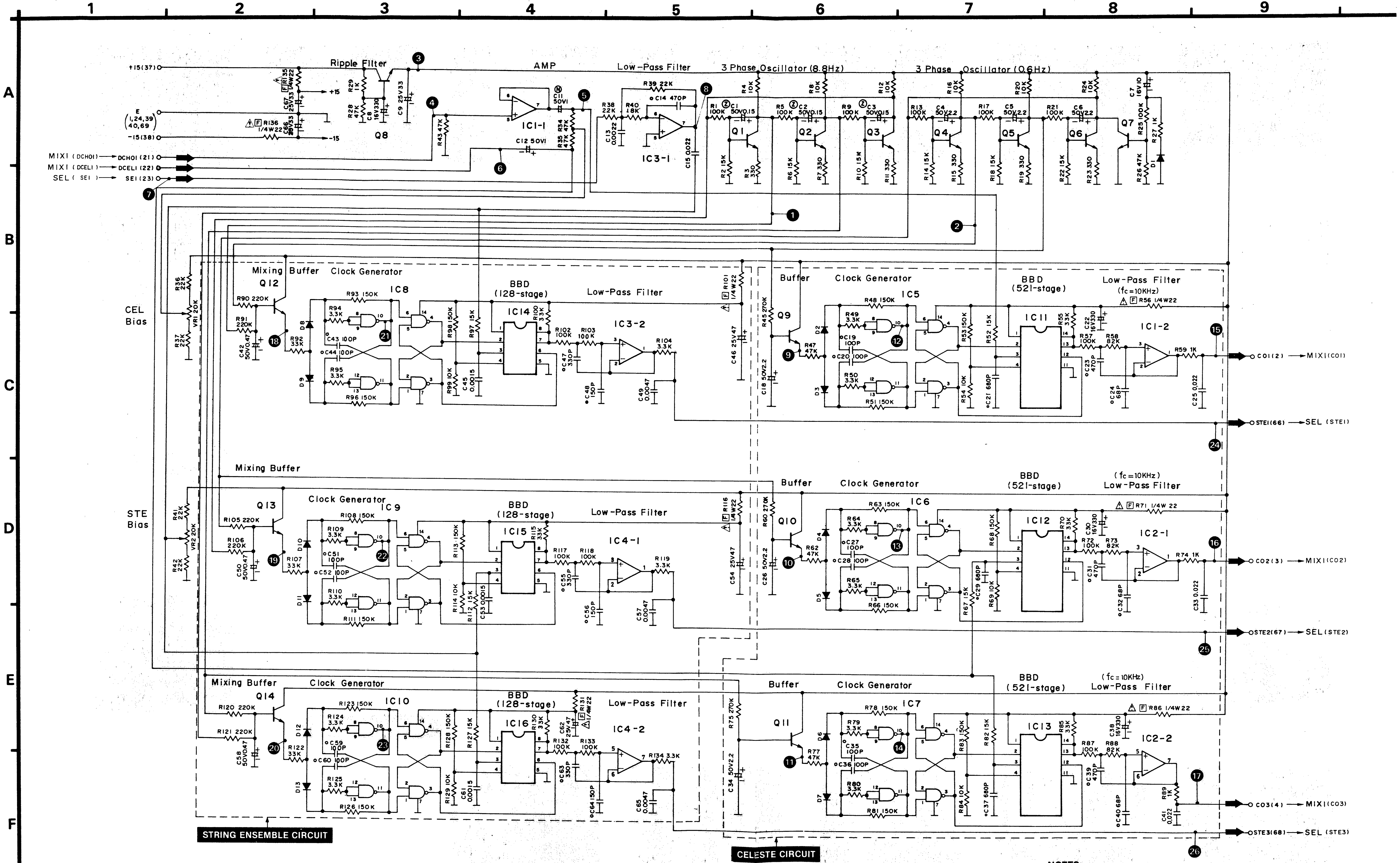


- Upper Tab......................Flute 8′
- Upper Key......................C4
- Volume...........................max
- Tremolo..........................U. Tab ON

㉒

DC 14V

CELESTE & STRING ENSEMBLE CIRCUIT DIAGRAM (CSM)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
+15(37)
E (1,24,39 40,69)
-15(38)
MIX1 (DCHO1) → DCHO1 (21)
MIX1 (DCEL1) → DCEL1 (22)
SEL (SE1) → SE1 (23)
Ripple Filter
Q8
AMP
IC1-1
Low-Pass Filter
IC3-1
3 Phase Oscillator (8.8Hz)
3 Phase Oscillator (0.6Hz)
Q1
Q2
Q3
Q4
Q5
Q6
Q7
CEL Bias
VR1 20K
STE Bias
VR2 20K
Mixing Buffer
Q12
Clock Generator
IC8
BBD (128-stage)
IC14
Low-Pass Filter
IC3-2
Mixing Buffer
Q13
Clock Generator
IC9
BBD (128-stage)
IC15
Low-Pass Filter
IC4-1
Mixing Buffer
Q14
Clock Generator
IC10
BBD (128-stage)
IC16
Low-Pass Filter
IC4-2
Buffer
Q9
Clock Generator
IC5
BBD (521-stage)
IC11
Low-Pass Filter (fc=10KHz)
IC1-2
Buffer
Q10
Clock Generator
IC6
BBD (521-stage)
IC12
(fc=10KHz) Low-Pass Filter
IC2-1
Buffer
Q11
Clock Generator
IC7
BBD (521-stage)
IC13
(fc=10KHz) Low-Pass Filter
IC2-2
CO1(2) → MIX1(CO1)
STE1(66) → SEL (STE1)
CO2(3) → MIX1(CO2)
STE2(67) → SEL (STE2)
CO3(4) → MIX1(CO3)
STE3(68) → SEL (STE3)
STRING ENSEMBLE CIRCUIT
CELESTE CIRCUIT

NOTES:

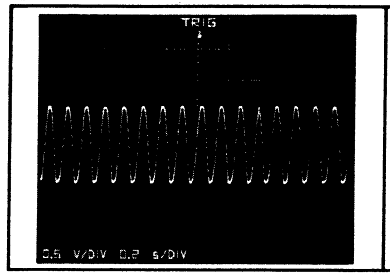
- IC'S
  - IC1~4: SVIGM5218L (SVIGNJM4558S)
  - IC5~10: SVIGMSM4011
  - IC11~13: MN3004
  - IC14~16: MN3006
- TRANSISTORS
  - Q1~14: 2SC2320LFG
- DIODES
  - D1~13: MA165TA5VT

CELESTE & STRING ENSEMBLE CIRCUIT BOARD (CSM)

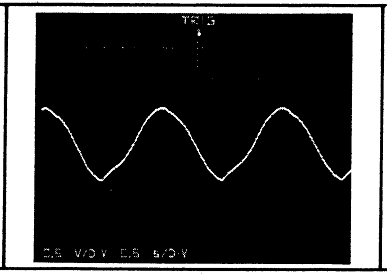
1 2 3 4 5 6 7 8 9

A B C D E F

❶ 8Hz



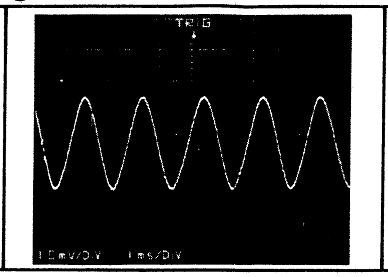
❷ 0.5Hz



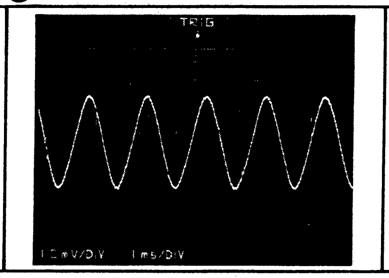
❸

DC +14V

❹



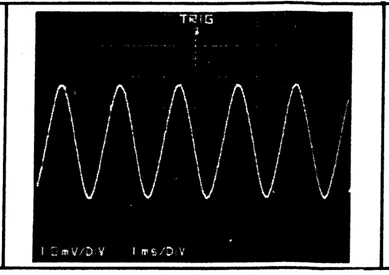
❺



(
- Upper Tab......................Flute 8'
- Upper Key......................C4
- Volume............................max
- Chorus............................U. Tab ON

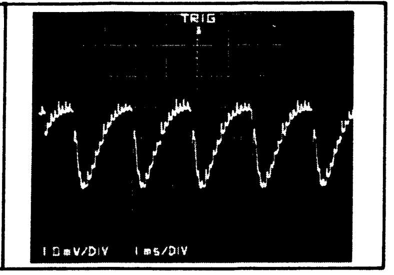
)

❻

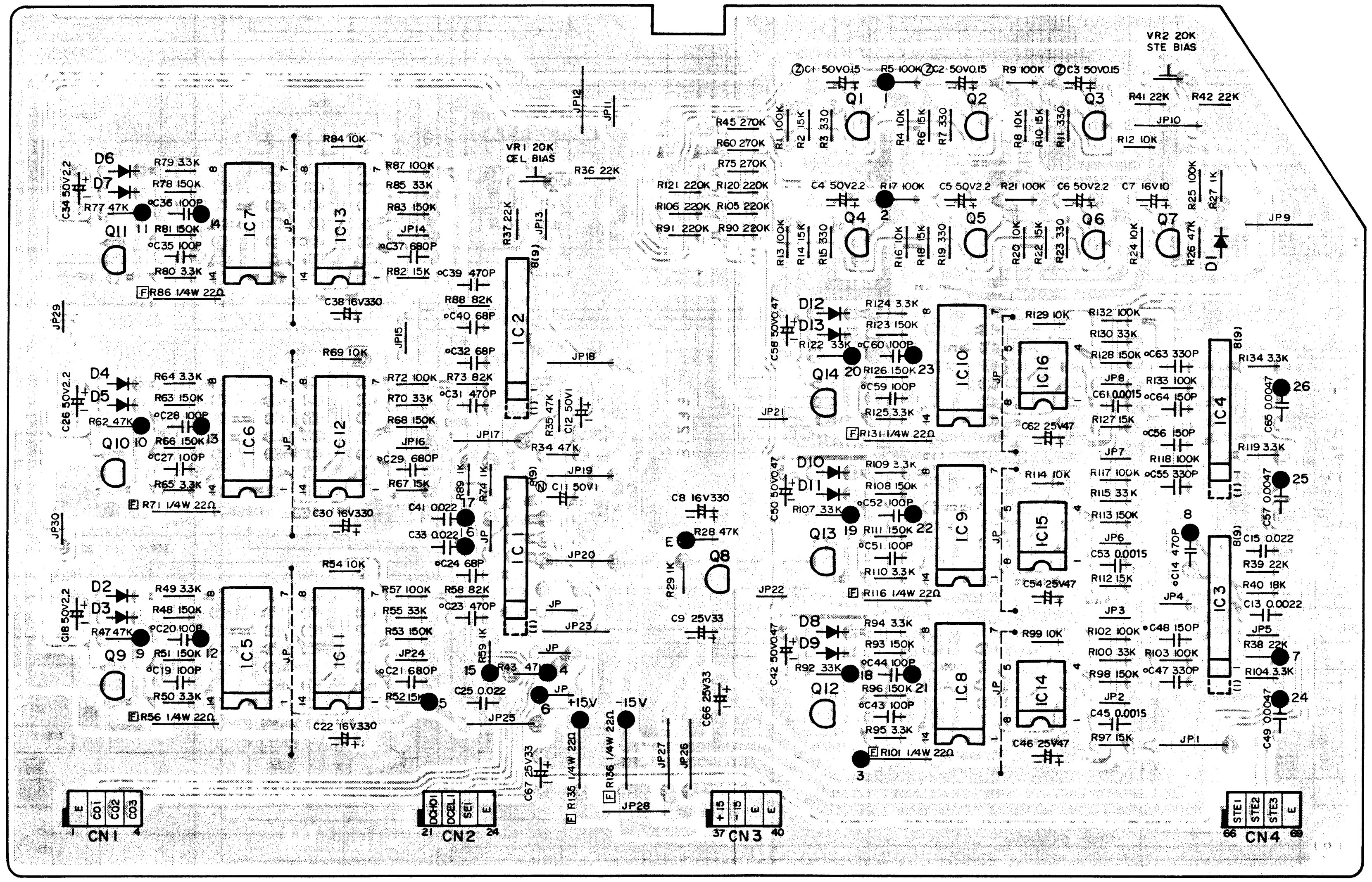


- Upper Tab.....Flute 8' • Volume.....max
- Upper Key.....C4 • Celeste.....U. Tab ON

❼

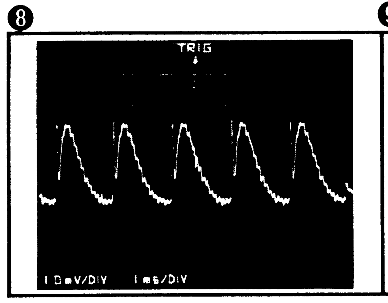


- U. String Ensemble.............Violin
- Volume..................................max
- Upper Key.............................C4


VR2 20K STE BIAS
VR1 20K CEL BIAS
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
+15V
-15V
CN1
E
CO1
CO2
CO3
CN2
DCHO1
DCEL1
SE1
CN3
+15
-15
CN4
STE1
STE2
STE3
JP1
JP9
JP10
JP28
R5 100K
R17 100K
R36 22K
R41 22K
R42 22K
R45 270K
R60 270K
R75 270K
R28 47K
C8 16V330
C9 25V33
C66 25V33
C67 25V33
R135 1/4W 22Ω
R136 1/4W 22Ω

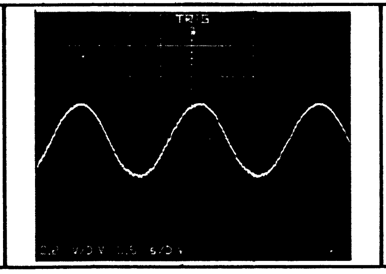
SXPGB12331

❽

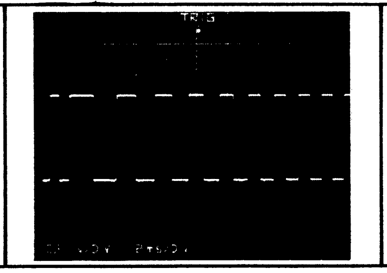


- U. String Ensemble.............Violin
- Volume..................................max
- Upper Key.............................C4

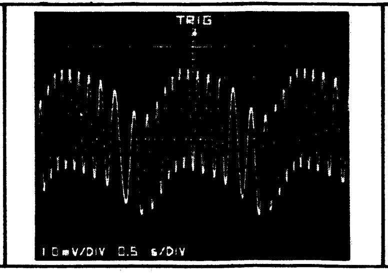
❾,❿,⓫ 0.5Hz



⓬,⓭,⓮

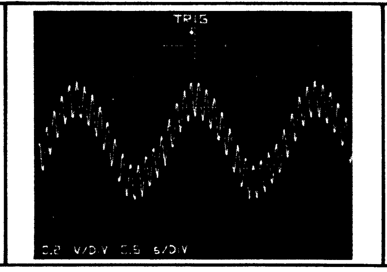


⓯,⓰,⓱, Celeste

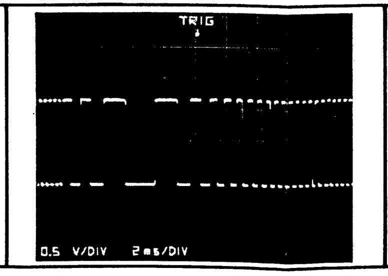


- Upper Tab.....Flute 8' • Volume.....max
- Upper Key.....C4 • Celeste.....U. Tab ON

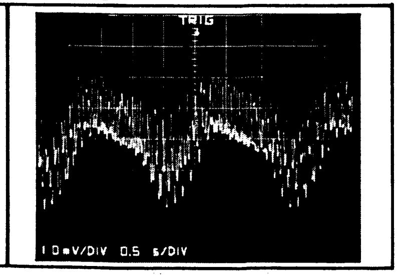
⓲,⓳,⓴



㉑,㉒,㉓

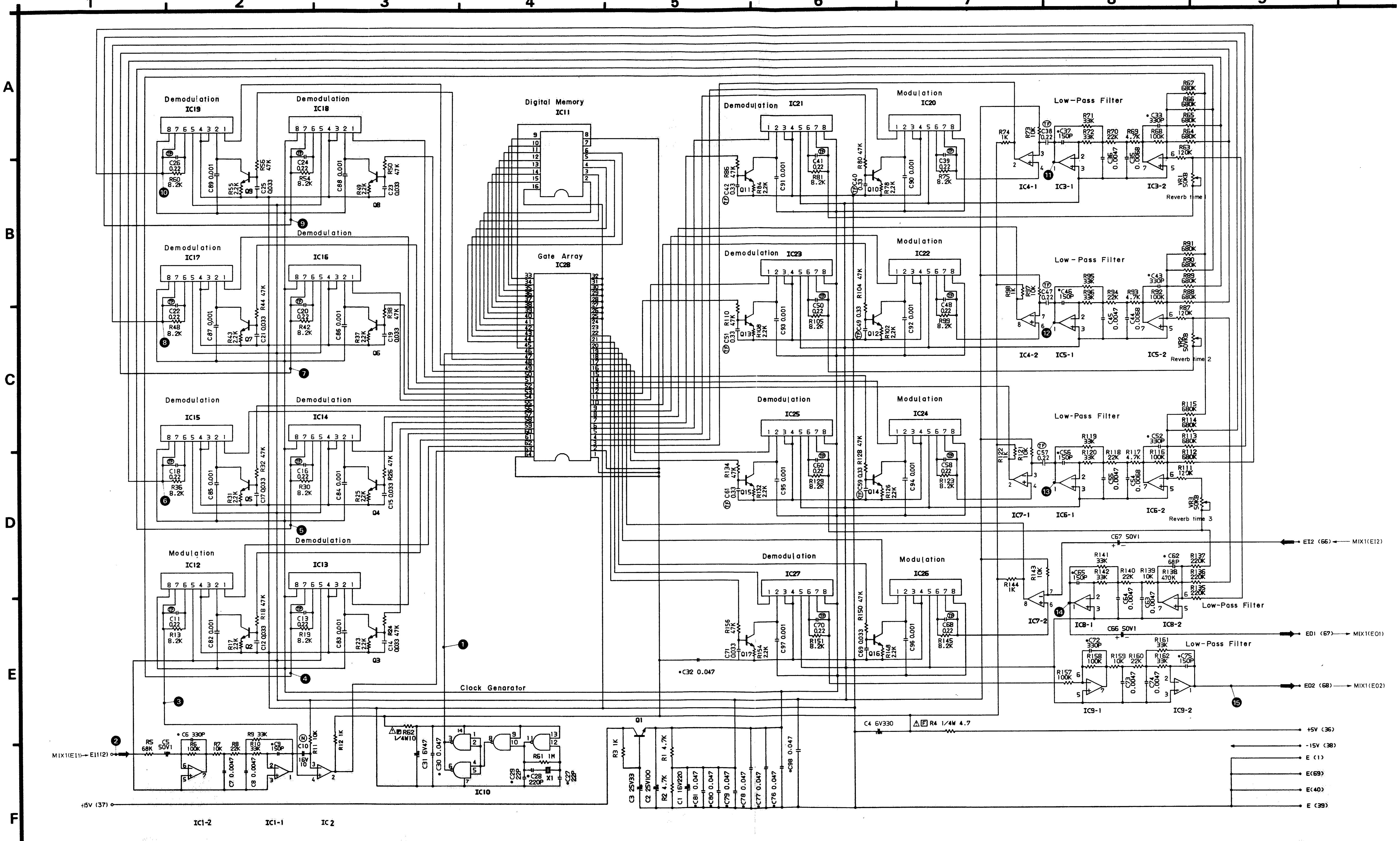


㉔,㉕,㉖



- U. String Ensemble.............Violin
- Volume..................................max
- Upper Key.............................C4

REVERB CIRCUIT DIAGRAM (REV)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Demodulation IC19
Demodulation IC18
Digital Memory IC11
Demodulation IC21
Modulation IC20
Low-Pass Filter
Demodulation IC17
Demodulation IC16
Gate Array IC28
Demodulation IC23
Modulation IC22
Demodulation IC15
Demodulation IC14
Demodulation IC25
Modulation IC24
Modulation IC12
Demodulation IC13
Demodulation IC27
Modulation IC26
Clock Generator
IC10
IC1-2
IC1-1
IC2
IC4-1
IC3-1
IC3-2
IC4-2
IC5-1
IC5-2
IC7-1
IC6-1
IC6-2
IC7-2
IC8-1
IC8-2
IC9-1
IC9-2
Reverb time 1
Reverb time 2
Reverb time 3
VR1 50KB
VR2 50KB
VR3 50KB
X1
Q1
MIX1(EI1)→EI1(2)
+15V (37)
EI2 (66) ← MIX1(EI2)
EO1 (67) → MIX1(EO1)
EO2 (68) → MIX1(EO2)
+5V (36)
-15V (38)
E (1)
E(69)
E(40)
E (39)
C4 6V330
R4 1/4W 4.7
C32 0.047
C67 50V1
C66 50V1

■ Precautions for servicing

1. IC's (Part No. SVIGM5225LL) used for IC12∼IC27 are classified by 5 ranks—red, green, blue, yellow, and white. When replacing these IC's, each of the pairs such as (IC12, 13), (IC14, 15)...(IC24, 25), and (IC26, 27) should be of the same rank.
2. Transistors (Part No. 2SC2320LFG) used for Q10∼15 are similarly classified by 4 ranks—red, green, blue, and white. When replacing these transistors, each of the pairs such as (Q10, 11), (Q12, 13), and (Q14, 15) should be of the same rank.

NOTES:

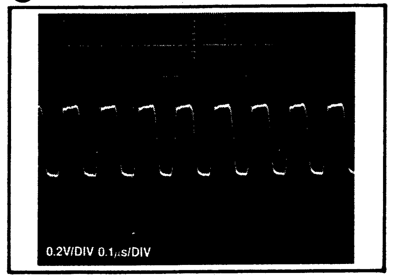
- IC'S
  - IC1, 3, 5, 6, 8, 9: SVIGM5218L (SVIGNJM4558S)
  - IC2, 4, 7: AN6913
  - IC10: SVIGTC40H000
  - IC11: SVIGM5K4164
  - IC12∼27: SVIGM5225LL
  - IC28: SVIG65010022
- TRANSISTORS
  - Q1∼17: 2SC2320LFG
- CERAMIC OSCILLATOR
  - X1: SVQGCSA800MT

REVERB CIRCUIT BOARD (REV)

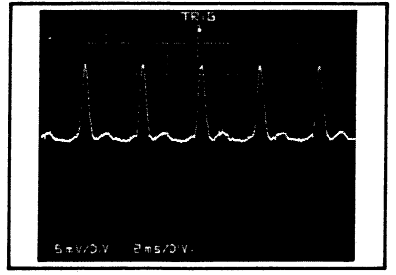
1 2 3 4 5 6 7 8 9

A B C D E F

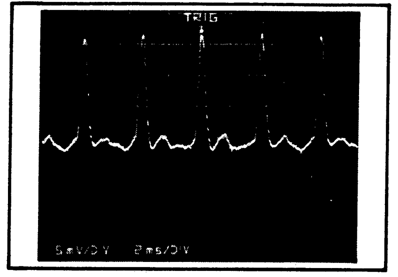
❶ 8MHz Clock



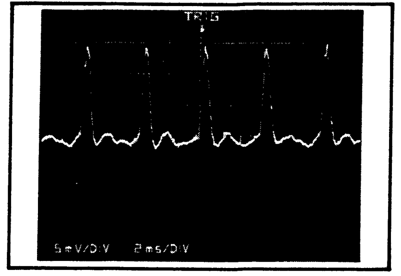
❷

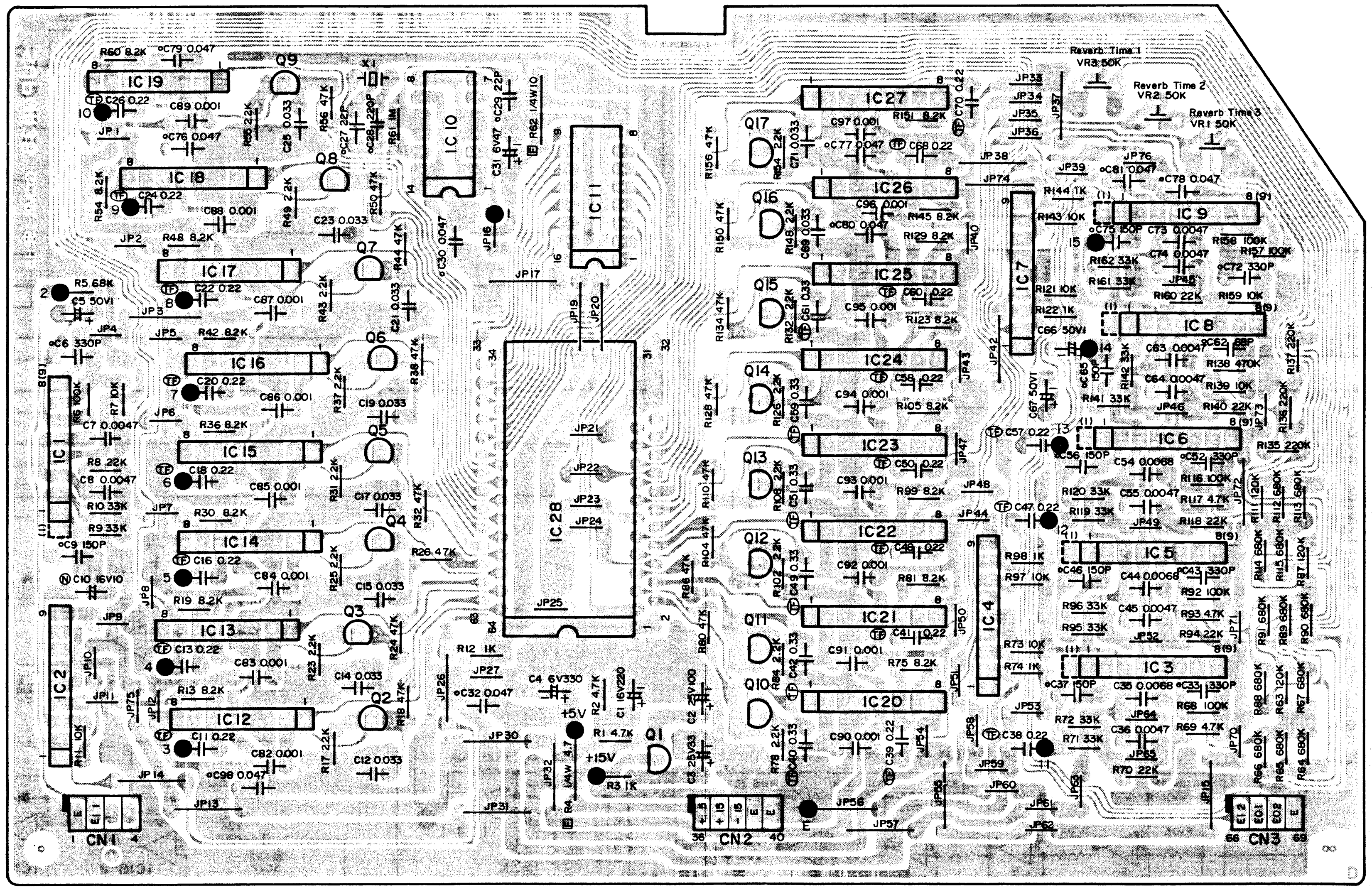


❸



❹ ~ ❿



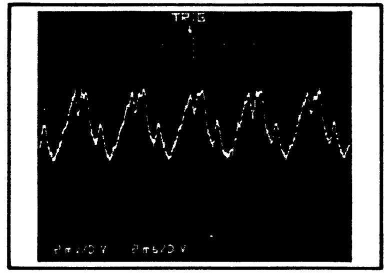

IC19
IC18
IC17
IC16
IC15
IC14
IC13
IC12
IC1
IC2
IC10
IC11
IC28
IC27
IC26
IC25
IC24
IC23
IC22
IC21
IC20
IC7
IC4
IC9
IC8
IC6
IC5
IC3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
X1
Reverb Time 1 VR3 50K
Reverb Time 2 VR2 50K
Reverb Time 3 VR1 50K
+5V
+15V
CN1
CN2
CN3
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

■ Measuring Conditions

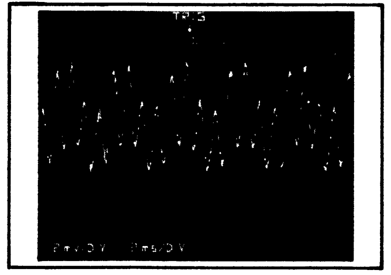
- U. Orchestral Presets : Trumpet
- Harmonic Control : Center
- OPS Volume : max
- Upper Key : C4

SXPG11351

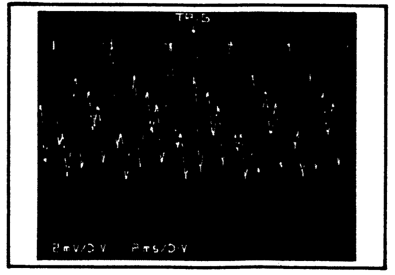
⓫



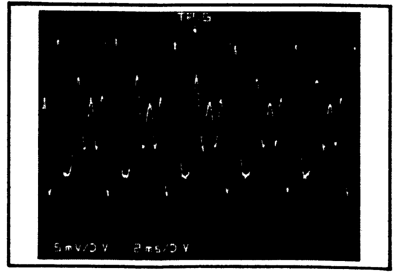
⓬



⓭



⓮



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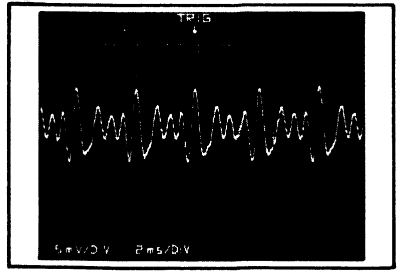
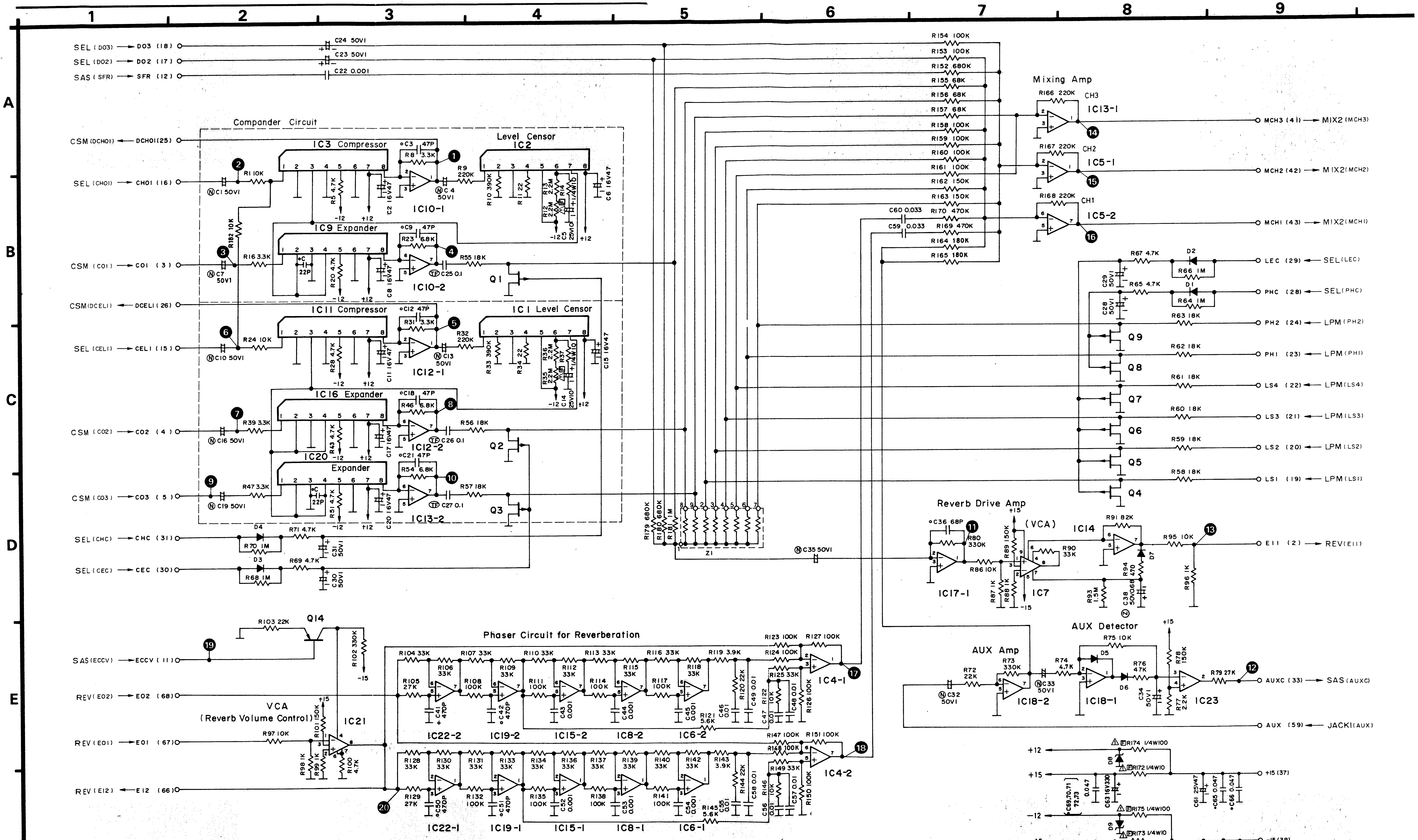


MIXING 1 CIRCUIT DIAGRAM (MIX1)

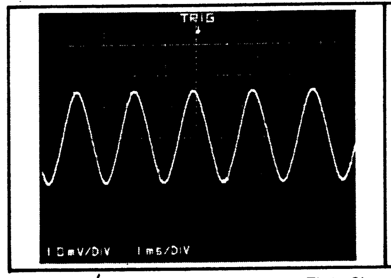

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SEL (D03) → D03 (18)
SEL (D02) → D02 (17)
SAS (SFR) → SFR (12)
C24 50V1
C23 50V1
C22 0.001
Compander Circuit
CSM (DCH01) ← DCH01 (25)
SEL (CH01) → CH01 (16)
IC3 Compressor
Level Censor
IC2
IC10-1
IC9 Expander
CSM (C01) → C01 (3)
IC10-2
Q1
CSM (DCEL1) ← DCEL1 (26)
IC11 Compressor
IC1 Level Censor
SEL (CEL1) → CEL1 (15)
IC12-1
IC16 Expander
CSM (C02) → C02 (4)
IC12-2
IC20 Expander
Q2
CSM (C03) → C03 (5)
IC13-2
Q3
SEL (CHC) → CHC (31)
SEL (CEC) → CEC (30)
Z1
Mixing Amp
CH3
IC13-1
MCH3 (41) → MIX2 (MCH3)
CH2
IC5-1
MCH2 (42) → MIX2 (MCH2)
CH1
IC5-2
MCH1 (43) → MIX2 (MCH1)
LEC (29) ← SEL (LEC)
PHC (28) ← SEL (PHC)
PH2 (24) ← LPM (PH2)
PH1 (23) ← LPM (PH1)
LS4 (22) ← LPM (LS4)
LS3 (21) ← LPM (LS3)
LS2 (20) ← LPM (LS2)
LS1 (19) ← LPM (LS1)
Q9
Q8
Q7
Q6
Q5
Q4
Reverb Drive Amp
(VCA)
IC14
IC17-1
IC7
E11 (2) → REV (E11)
Q14
SAS (ECCV) → ECCV (11)
Phaser Circuit for Reverberation
REV (E02) → E02 (68)
VCA
(Reverb Volume Control)
IC21
REV (E01) → E01 (67)
REV (E12) ← E12 (66)
IC22-2
IC19-2
IC15-2
IC8-2
IC6-2
IC4-1
IC22-1
IC19-1
IC15-1
IC8-1
IC6-1
IC4-2
AUX Detector
AUX Amp
IC18-2
IC18-1
IC23
AUXC (33) → SAS (AUXC)
AUX (59) ← JACK1 (AUX)
+12
+15
−12
−15
+15 (37)
−15 (38)

NOTES:

- IC'S
  - IC1, 2: SVIGUPC1253H
  - IC3, 9, 11, 16, 20: SVIGUPC1252H
  - IC4~6, 8, 10, 12~15, 17~19, 22: SVIGM5218L
  - IC7, 21: SVIGBA6110
  - IC23: AN6913
- TRANSISTORS
  - Q1~9: 2SJ40CD
  - Q14: 2SA1015GR
- DIODES
  - D1~7: MA165TA5VT
  - D8, 9: MA1120M
- COMPONENTS COMBINATION
  - Z1: EXBP88105MM

MIXING 1 CIRCUIT BOARD (MIX1)

①



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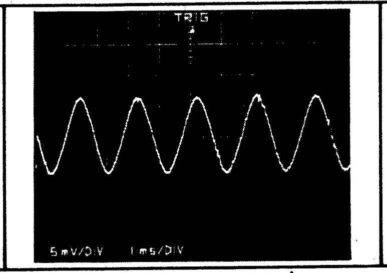
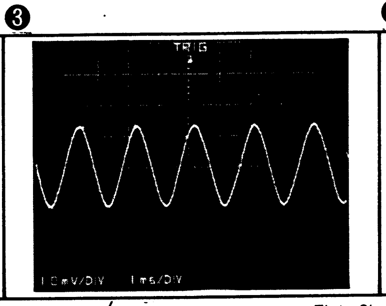
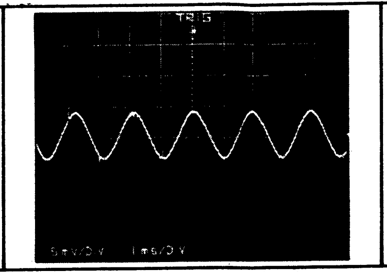


(•Upper Tab......................Flute 8' •Upper Key......................C4 •Volume..........................max •Chorus..........................U. Tab ON)

③

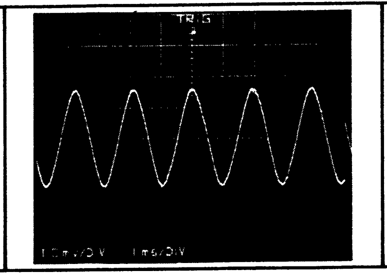


④

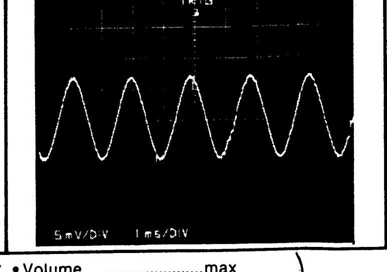


(•Upper Tab......................Flute 8' •Upper Key......................C4 •Volume..........................max •Celeste..........................U. Tab ON)

⑤

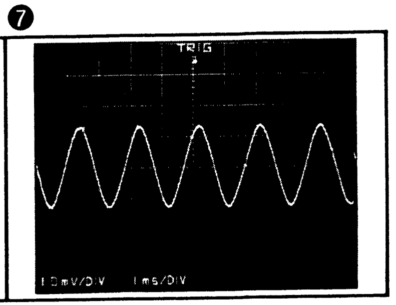


⑥



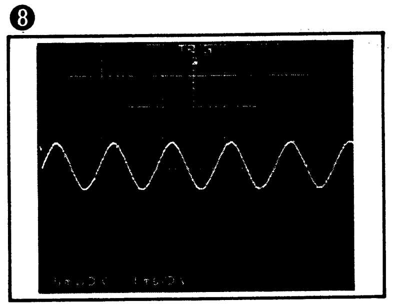
(•Upper Tab......................Flute 8' •Upper Key......................C4 •Volume..........................max •Celeste..........................U. Tab ON)

⑦



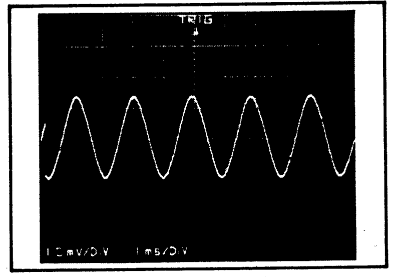
•Upper Tab.....Flute 8' •Volume.....max •Upper Key.....C4 •Celeste.....U. Tab ON

⑧



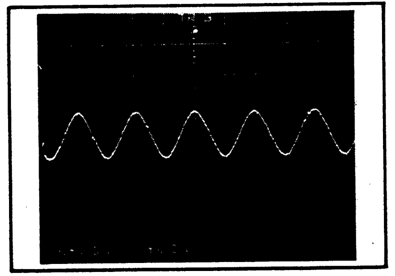
•Upper Tab.....Flute 8' •Volume.....max •Upper Key.....C4 •Celeste.....U. Tab ON

⑨

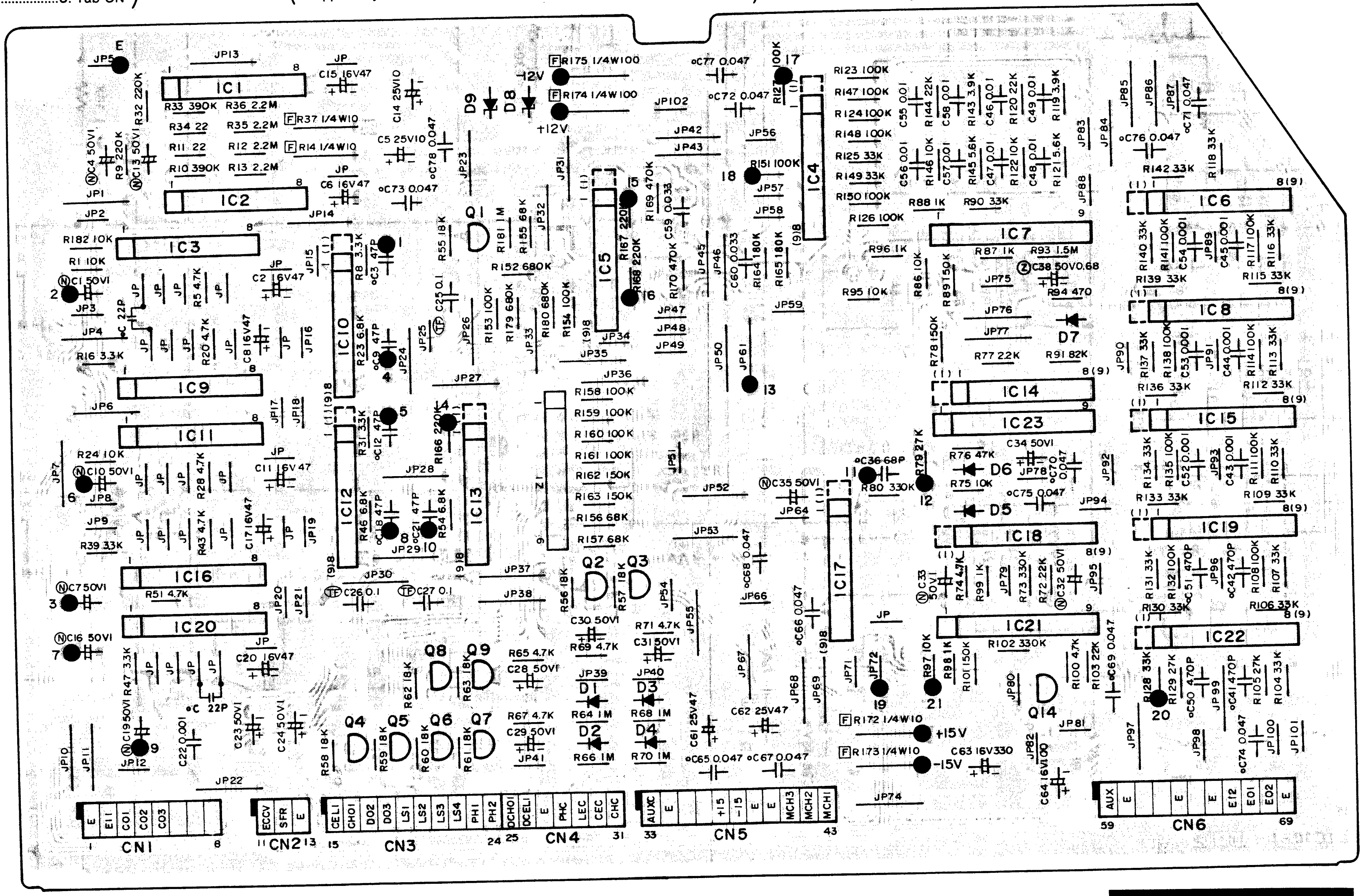


•Upper Tab.....Flute 8' •Volume.....max •Upper Key.....C4 •Celeste.....U. Tab ON

⑩

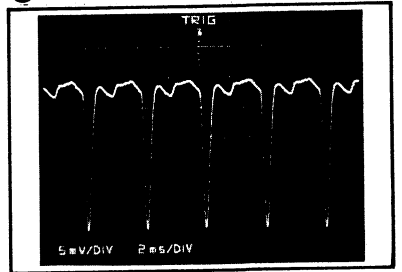


•Upper Tab.....Flute 8' •Volume.....max •Upper Key.....C4 •Celeste.....U. Tab ON


IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q14
D1
D2
D3
D4
D5
D6
D7
D8
D9
-12V
+12V
+15V
-15V
CN1
E
EI1
CO1
CO2
CO3
CN2
ECCV
SFR
E
CN3
CEL1
CHO1
DO2
DO3
LS1
LS2
LS3
LS4
PH1
PH2
OCHO1
OCEL1
E
CN4
PHC
LEC
CEC
CHC
AUX
E
CN5
+15
-15
E
E
MCH3
MCH2
MCH1
CN6
AUX
E
E
E
EI2
EO1
EO2
1
8
11
13
15
24
25
31
33
43
59
69

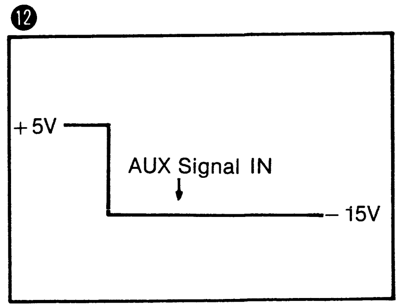
SXPGA12141

⑪

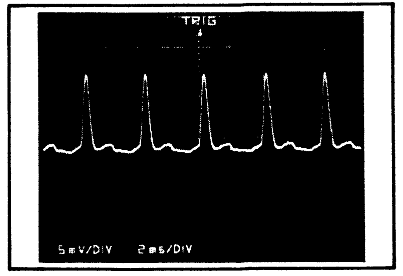


•U. Orchestral Presets..........Trumpet •Volume.....max •Upper Key.....C4 •Harmonic Control................Center

⑫

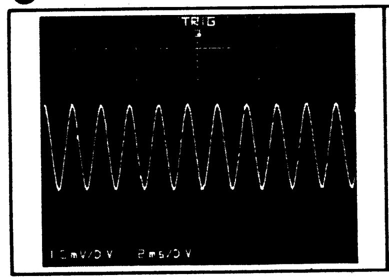

+5V
AUX Signal IN
– 15V

⑬



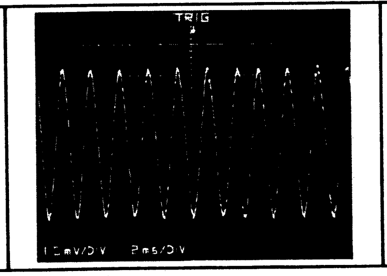
•U. Orchestral Presets..........Trumpet •Volume.....max •Upper Key.....C4 •Harmonic Control................Center

⑭



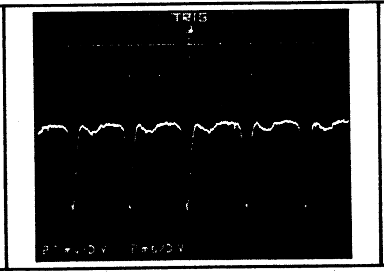
•Upper Tab.....Flute 8' •Volume.....max •Upper Key.....C4 •Celeste.....U. Tab ON

⑮



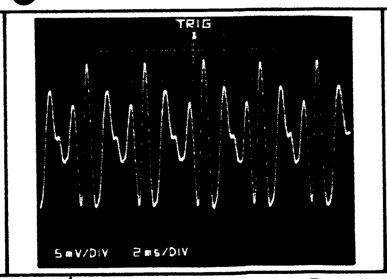
•Upper Tab......................Flute 8' •Volume..........................max •Upper Key......................C4

⑯

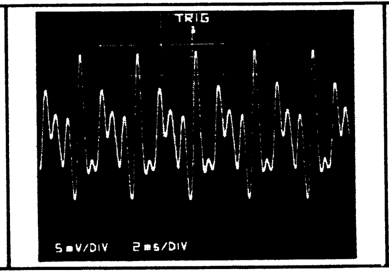


•U. Orchestral Presets.........Trumpet •Volume.....max •Upper Key.....C4 •Harmonic Control...............Center

⑰



⑱

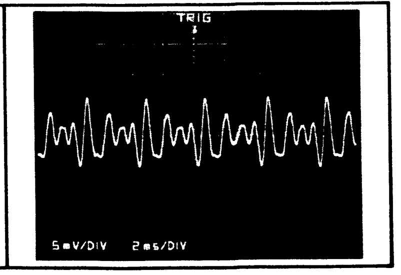


(•U. Orchestral Presets.........Trumpet •OPS Volume........................max •Harmonic Control...............Center •Reverb Vol.............max •Upper Key..............C4)

⑲ Reverb Volume Control

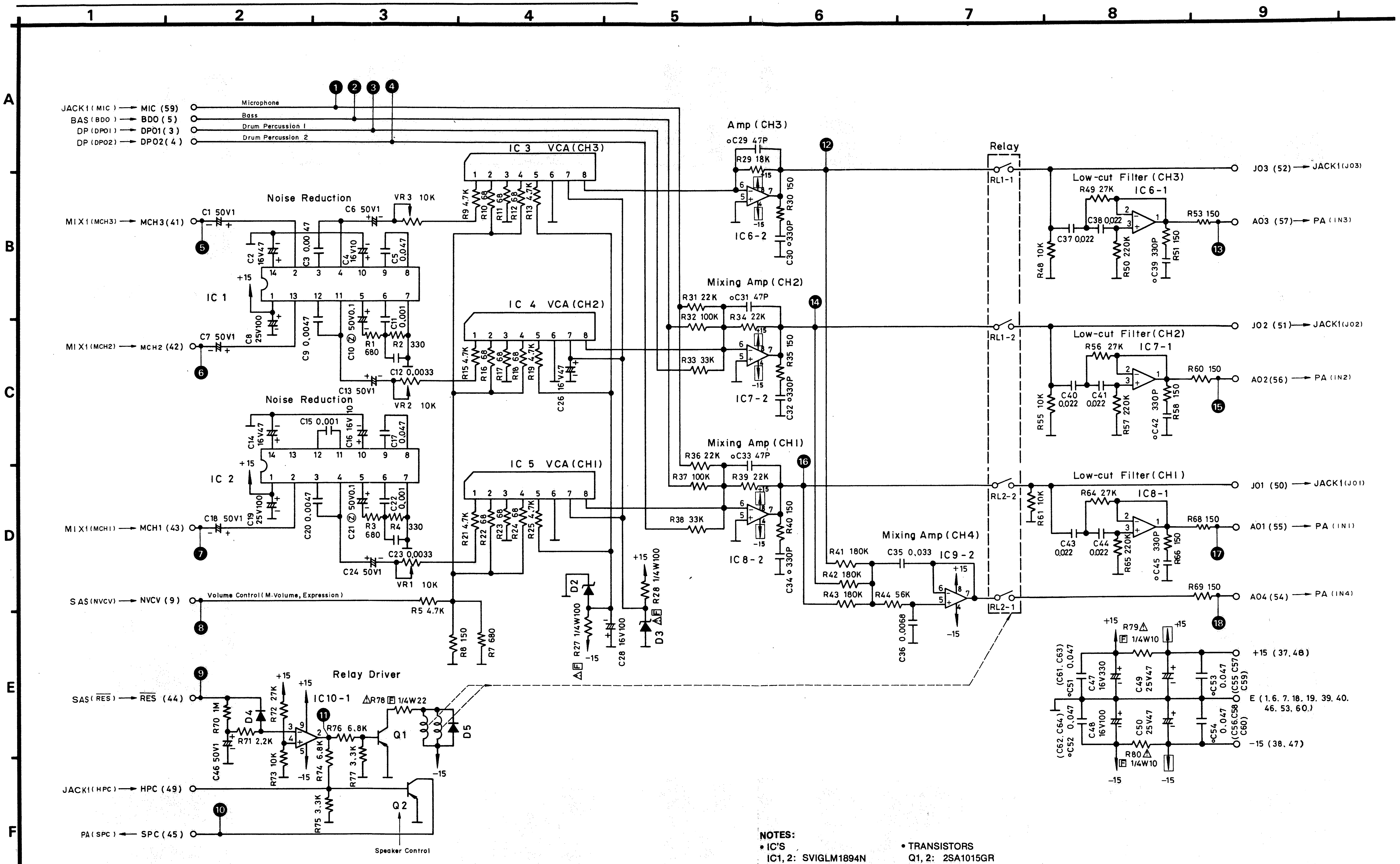
- Reverb Volume
  - step 1....................0V
  - step 2.................... – 2.22V
  - step 3.................... – 4.93V
  - step 4.................... – 10.36V

⑳



•U. Orchestral Presets..........Trumpet •OPS Volume, Reverb Volume.....max •Harmonic Control.....Center •C4 Key

MIXING 2 CIRCUIT DIAGRAM (MIX2)

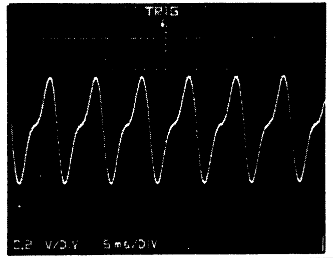

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
JACK1 (MIC) → MIC (59)
BAS (BDO) → BDO (5)
DP (DPO1) → DPO1 (3)
DP (DPO2) → DPO2 (4)
Microphone
Bass
Drum Percussion 1
Drum Percussion 2
MIX1 (MCH3) → MCH3 (41)
MIX1 (MCH2) → MCH2 (42)
MIX1 (MCH1) → MCH1 (43)
SAS (NVCV) → NVCV (9)
Volume Control (M-Volume, Expression)
SAS (RES) → RES (44)
JACK1 (HPC) → HPC (49)
PA (SPC) ← SPC (45)
Speaker Control
Noise Reduction
IC 1
IC 2
IC 3 VCA (CH3)
IC 4 VCA (CH2)
IC 5 VCA (CH1)
Amp (CH3)
Mixing Amp (CH2)
Mixing Amp (CH1)
Mixing Amp (CH4)
IC6-2
IC7-2
IC8-2
IC9-2
Relay
RL1-1
RL1-2
RL2-2
RL2-1
Low-cut Filter (CH3)
Low-cut Filter (CH2)
Low-cut Filter (CH1)
IC6-1
IC7-1
IC8-1
J03 (52) → JACK1 (J03)
A03 (57) → PA (IN3)
J02 (51) → JACK1 (J02)
A02 (56) → PA (IN2)
J01 (50) → JACK1 (J01)
A01 (55) → PA (IN1)
A04 (54) → PA (IN4)
Relay Driver
IC10-1
Q1
Q2
D2
D3
D4
D5
+15 (37, 48)
E (1, 6, 7, 18, 19, 39, 40, 46, 53, 60.)
-15 (38, 47)
C1 50V1
C2 16V47
C3 0.0047
C4 16V10
C5 0.047
C6 50V1
VR3 10K
C7 50V1
C8 25V100
C9 0.0047
C10 50V0.1
C11 0.001
C12 0.0033
C13 50V1
VR2 10K
C14 16V47
C15 0.001
C16 16V
C17 0.047
C18 50V1
C19 25V100
C20 0.0047
C21 50V0.1
C22 0.001
C23 0.0033
C24 50V1
VR1 10K
C26 16V47
C28 16V100
C29 47P
C30 330P
C31 47P
C32 330P
C33 47P
C34 330P
C35 0.033
C36 0.0068
C37 0.022
C38 0.022
C39 330P
C40 0.022
C41 0.022
C42 330P
C43 0.022
C44 0.022
C45 330P
C46 50V1
C47 16V330
C48 16V100
C49 25V47
C50 25V47
C51 0.047
C52 0.047
C53 0.047
C54 0.047
(C61, C63)
(C62, C64)
(C55 C57 C59)
(C56, C58 C60)
R1 680
R2 330
R3 680
R4 330
R5 4.7K
R7 680
R8 150
R9 4.7K
R10 68
R11 68
R12 68
R13 4.7K
R15 4.7K
R16 68
R17 68
R18 68
R19 4.7K
R21 4.7K
R22 68
R23 68
R24 68
R25 4.7K
R27 1/4W100
R28 1/4W100
R29 18K
R30 150
R31 22K
R32 100K
R33 33K
R34 22K
R35 150
R36 22K
R37 100K
R38 33K
R39 22K
R40 150
R41 180K
R42 180K
R43 180K
R44 56K
R48 10K
R49 27K
R50 220K
R51 150
R53 150
R55 10K
R56 27K
R57 220K
R58 150
R60 150
R61 10K
R64 27K
R65 220K
R66 150
R68 150
R69 150
R70 1M
R71 2.2K
R72 27K
R73 10K
R74 6.8K
R75 3.3K
R76 6.8K
R77 3.3K
R78 1/4W22
R79 1/4W10
R80 1/4W10
+15
-15

NOTES:

- IC'S
  - IC1, 2: SVIGLM1894N
  - IC3~5: SVIGUPC1252H
  - IC6~8: SVIGM5216LL
  - IC9: SVIGM5218L
  - IC10: AN6913
- TRANSISTORS
  - Q1, 2: 2SA1015GR
- DIODES
  - D2, 3: MA1120M
  - D4, 5: MA165TA5VT
- RELAYS
  - RL1, 2: SSYGMR5212S

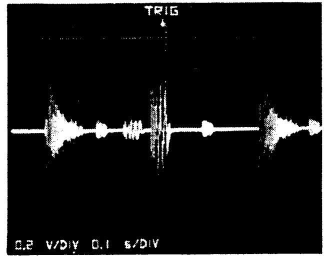
MIXING 2 CIRCUIT BOARD (MIX2)

❷ Bass

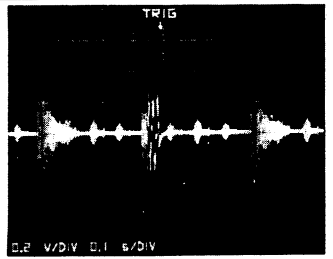


- Bass.....Bass 8′ • Pedal Key.....C2
- Main Vol, Pedal Vol, EXP.....Max

❸ Drum Percussion 1

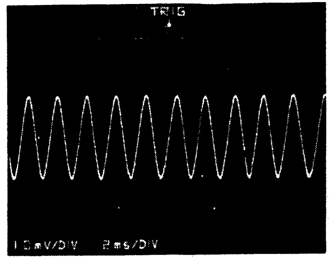


❹ Drum Percussion 2



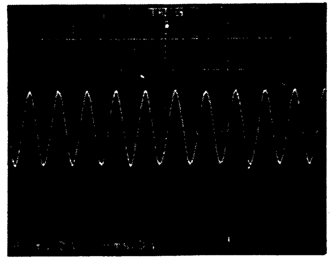
- Rhythm SW.....16 beat • Arrange Percussion.....I
- Rhythm Vol, Main Vol, EXP.....max

❺



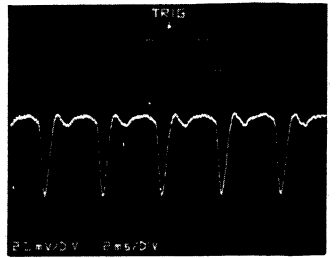
- Upper Tab.....Flute 8′ • Volume.....max
- Upper Key.....C4 • Celeste.....U. Tab ON

❻



- Upper Tab.....Flute 8′ • Volume.....max
- Upper Key.....C4

❼

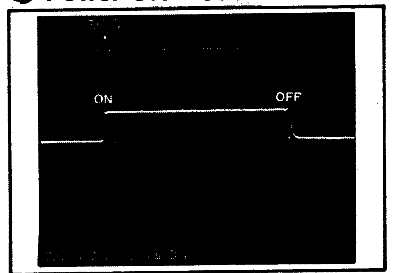


- U. Orchestral Presets.....Trumpet
- Volume.....max • Upper Key.....C4
- Harmonic Control.....Center

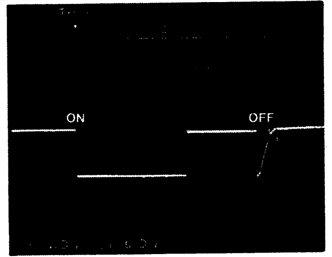
❽ Main Vol, EXP Control

- EXP Pedal............max
- Main Volume Control
  - step 1.................... – 3.32V
  - step 2.................... – 2.35V
  - step 3.................... – 1.37V
  - step 4.................... – 0.35V
- Main Vol, EXP......Min: – 11.93V

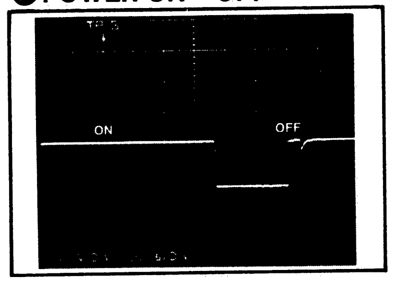
❾ Power ON—OFF

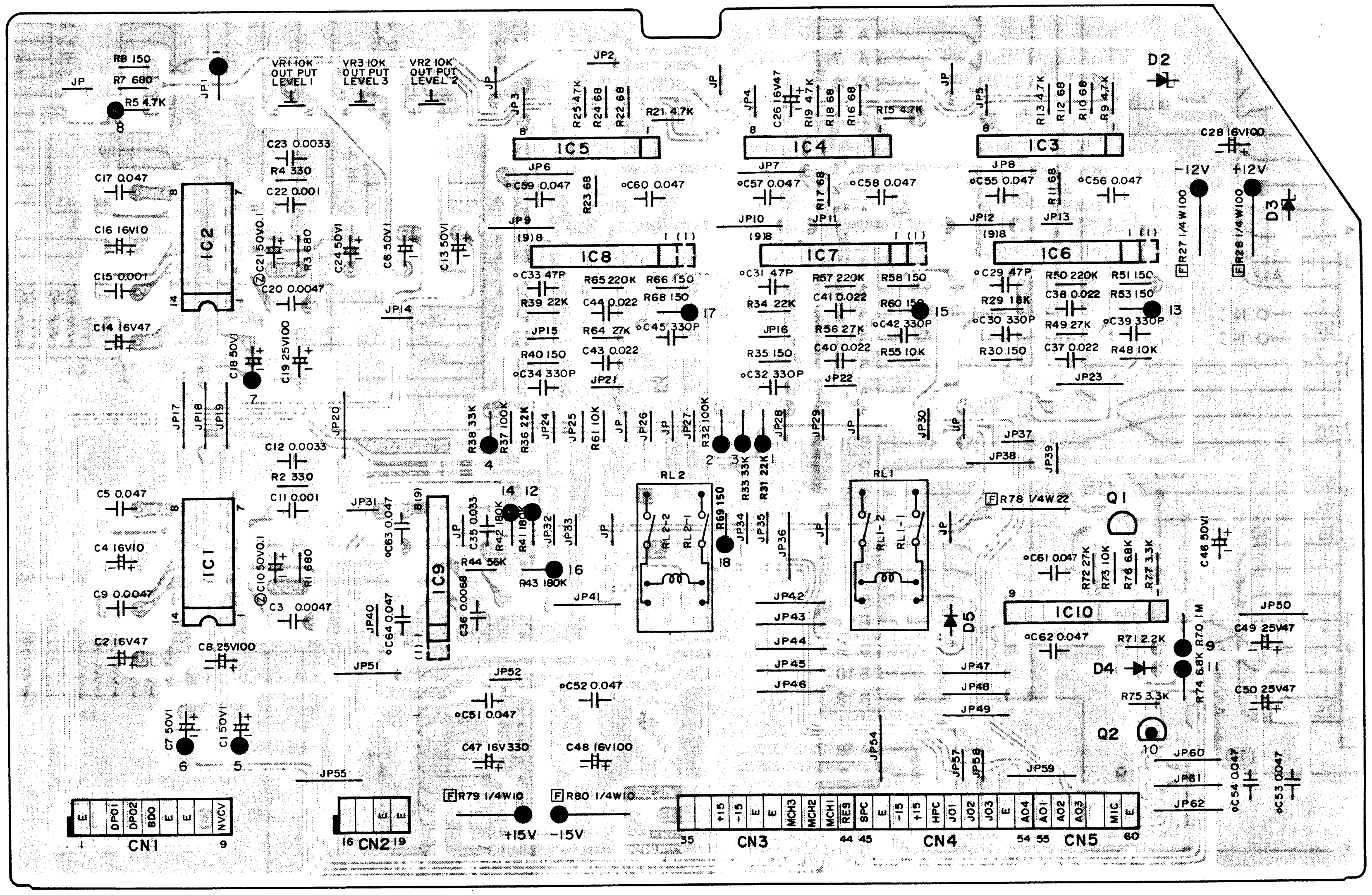


❿ POEWR ON—OFF



⓫ POWER ON—OFF




1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
R8 150
R7 680
R5 4.7K
JP
JP1
VR1 10K OUT PUT LEVEL 1
VR3 10K OUT PUT LEVEL 3
VR2 10K OUT PUT LEVEL 2
JP2
JP3
R25 4.7K
R24 68
R22 68
R21 4.7K
JP4
C26 16V47
R19 4.7K
R18 68
R16 68
R15 4.7K
JP5
R13 4.7K
R12 68
R10 68
R9 4.7K
D2
C28 16V100
IC5
IC4
IC3
IC2
IC1
IC8
IC7
IC6
IC9
IC10
C23 0.0033
R4 330
C22 0.001
C17 0.047
C16 16V10
C15 0.001
C14 16V47
C21 50V0.1
R3 680
C24 50V1
C6 50V1
C13 50V1
C20 0.0047
JP14
C18 50V1
C19 25V100
JP6
C59 0.047
C60 0.047
R23 68
JP7
C57 0.047
R17 68
C58 0.047
JP8
C55 0.047
R11 68
C56 0.047
-12V
+12V
D3
R27 1/4W100
R28 1/4W100
JP9
JP10
JP11
JP12
JP13
C33 47P
R65 220K
R66 150
R39 22K
C44 0.022
R68 150
C45 330P
R40 150
C43 0.022
C34 330P
JP15
JP21
C31 47P
R57 220K
R58 150
R34 22K
C41 0.022
R60 150
C42 330P
R56 27K
R55 10K
R35 150
C40 0.022
C32 330P
JP16
JP22
C29 47P
R50 220K
R51 150
C38 0.022
R53 150
R29 18K
C30 330P
R49 27K
C39 330P
R30 150
C37 0.022
R48 10K
JP23
R64 27K
JP17
JP18
JP19
JP20
C12 0.0033
R2 330
C5 0.047
C11 0.001
C4 16V10
C10 50V0.1
R1 680
C9 0.0047
C3 0.0047
C2 16V47
C8 25V100
R38 33K
R37 100K
R36 22K
JP24
JP25
R61 10K
JP26
JP27
R32 100K
R33 33K
R31 22K
JP28
JP29
JP30
JP37
JP38
JP39
RL2
RL1
RL2-2
RL2-1
RL1-2
RL1-1
R69 150
R78 1/4W22
Q1
JP31
C63 0.047
C35 0.033
R42 180K
R41 180K
JP32
JP33
JP34
JP35
JP36
R44 56K
R43 180K
C36 0.0068
C64 0.047
JP40
JP41
JP42
JP43
JP44
JP45
JP46
D5
C61 0.047
R72 27K
R73 10K
R76 6.8K
R77 3.3K
C46 50V1
C62 0.047
R71 2.2K
R70 1M
D4
R74 6.8K
R75 3.3K
JP50
C49 25V47
C50 25V47
JP47
JP48
JP49
JP51
JP52
C51 0.047
C52 0.047
C47 16V330
C48 16V100
C7 50V1
C1 50V1
JP55
Q2
JP54
JP57
JP58
JP59
JP60
JP61
JP62
C54 0.047
C53 0.047
R79 1/4W10
R80 1/4W10
+15V
-15V
E
DPO1
DPO2
BDO
E
E
NVCV
CN1
1
9
CN2
16
19
+15
-15
E
E
MCH3
MCH2
MCH1
RES
SPC
E
-15
+15
HPC
JO1
JO2
JO3
E
AO4
AO1
AO2
AO3
E
MIC
CN3
35
44
45
CN4
54
55
CN5
60
1
2
3
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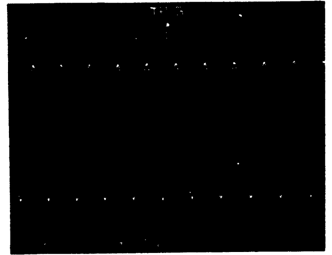
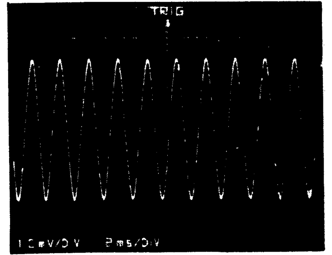
SXPGB12141

⓬

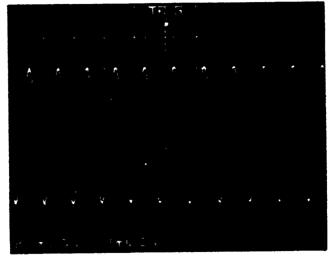


⓭

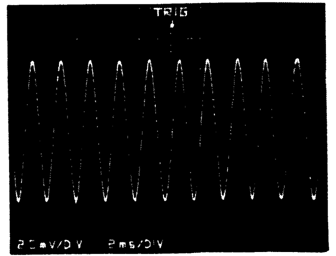


- Upper Tab......................Flute 8′
- Celeste...........................U. Tab ON
- Main Vol, EXP...............max
- Volume...........................max
- Upper Key......................C4

⓮

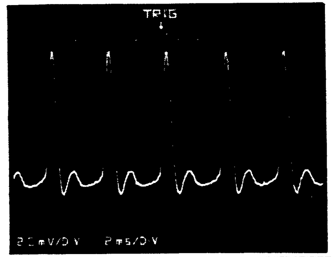


⓯

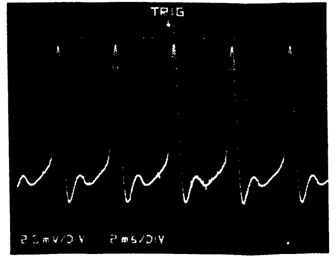


- Upper Tab......................Flute 8′
- Upper Key......................C4
- Volume...........................max
- Main Vol, EXP...............max

⓰

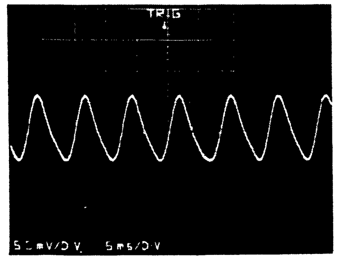


⓱



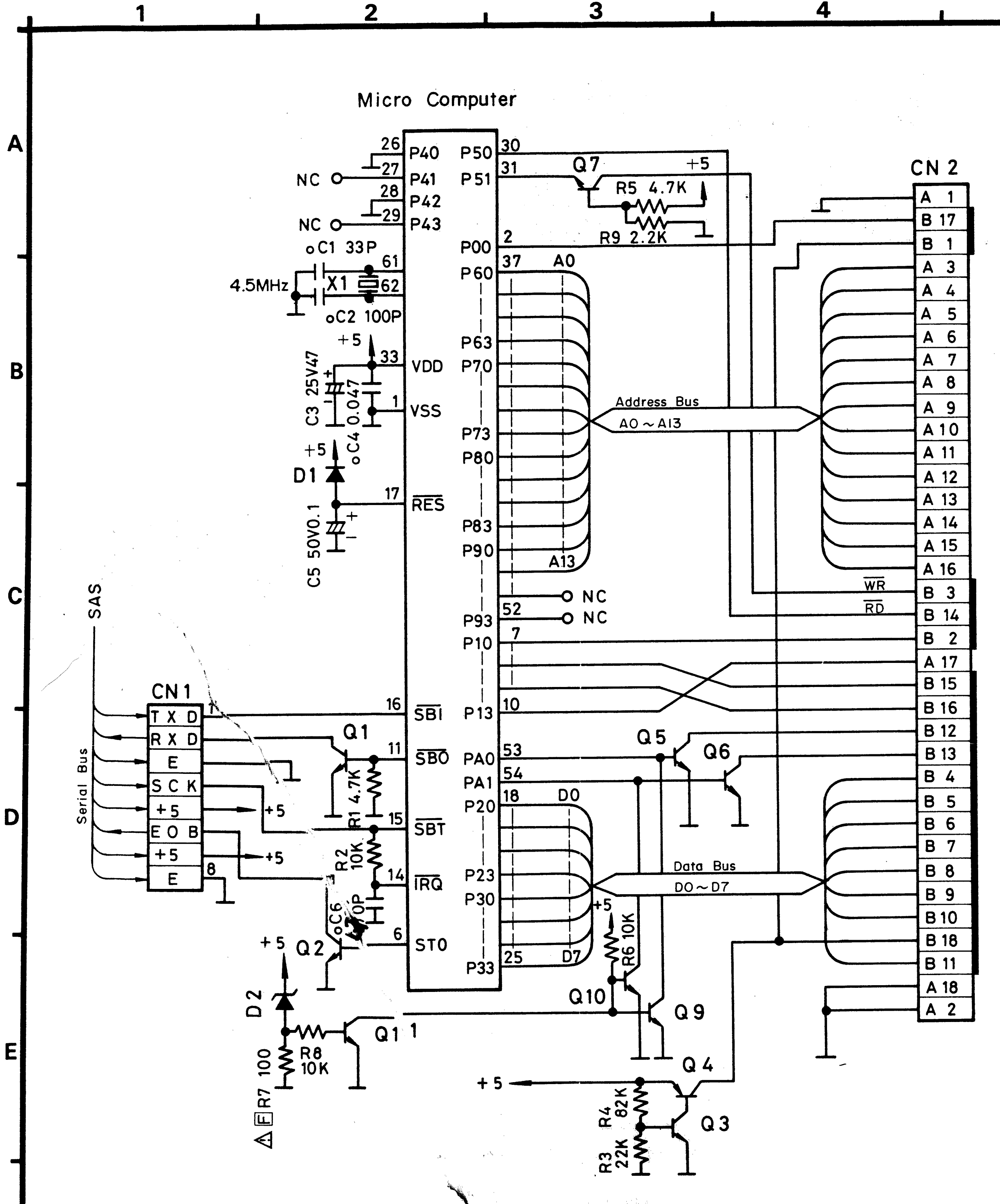
- Orchestral Presets.......Trumpet
- Harmonic Control.........Center
- Main Vol, EXP...............max
- Volume...........................max
- Upper Key......................C4

⓲



- Bass.....Bass 8′ • Pedal Key.....C2
- M. Vol, Bass Vol, EXP................max

MEMORY PACK CONTROL CIRCUIT DIAGRAM (MPC)

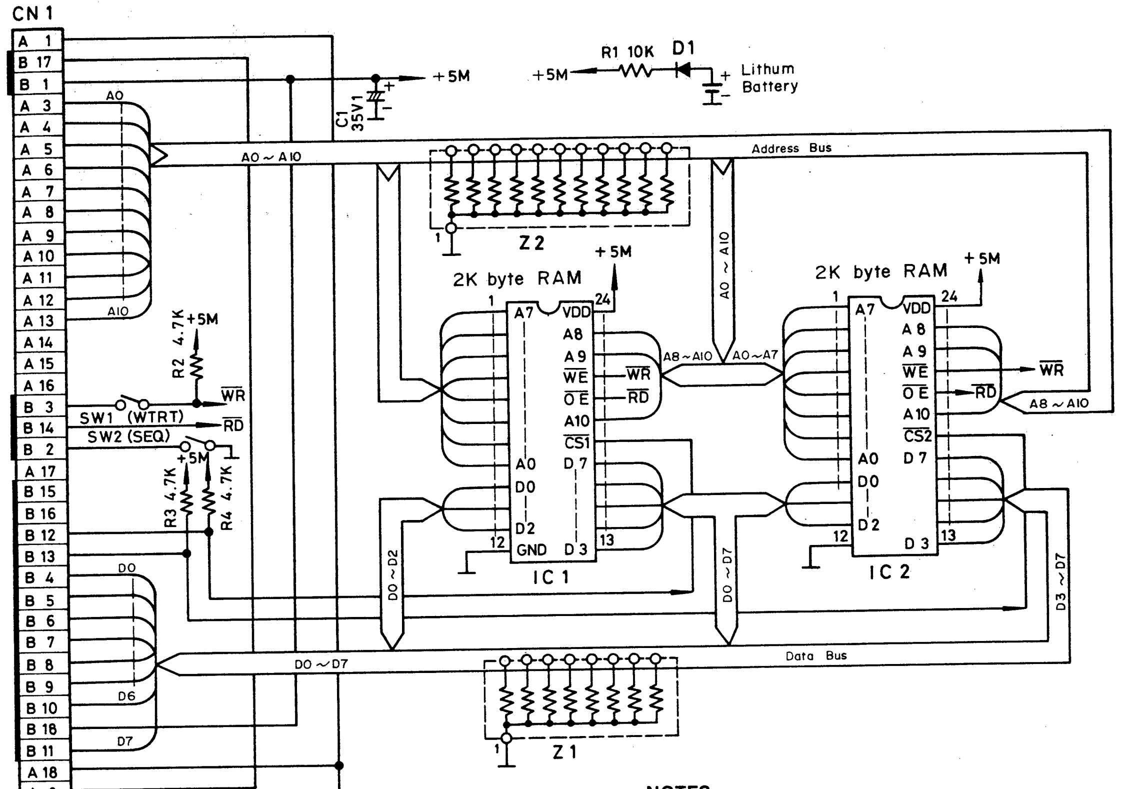

1
2
3
4
5
A
B
C
D
E
Micro Computer
P40
P41
P42
P43
P50
P51
P00
P60
P63
P70
P73
P80
P83
P90
P93
P10
P13
PA0
PA1
P20
P23
P30
P33
VDD
VSS
RES
SBI
SBO
SBT
IRQ
STO
NC
C1 33P
C2 100P
X1
4.5MHz
C3 25V47
C4 0.047
C5 50V0.1
D1
+5
Q7
R5 4.7K
R9 2.2K
A0
A13
D0
D7
Address Bus
A0 ~ A13
Data Bus
D0 ~ D7
CN 2
A 1
B 17
B 1
A 3
A 4
A 5
A 6
A 7
A 8
A 9
A 10
A 11
A 12
A 13
A 14
A 15
A 16
B 3
B 14
B 2
A 17
B 15
B 16
B 12
B 13
B 4
B 5
B 6
B 7
B 8
B 9
B 10
B 18
B 11
A 18
A 2
WR
RD
CN 1
TXD
RXD
E
SCK
+5
EOB
+5
E
SAS
Serial Bus
Q1
R1 4.7K
R2 10K
C6 10P
Q2
D2
R7 100
R8 10K
Q11
Q5
Q6
R6 10K
Q10
Q9
Q4
Q3
R4 82K
R3 22K

NOTES:
- IC
  - IC1: MN15621PGB
- TRANSISTORS
  - Q1, 2, 7: 2SC1047C
  - Q3, 5, 6, 9~11: 2SC2320LFG
  - Q4: 2SA1015GR
- DIODES
  - D1: MA165TA5VT
  - D2: MA1036-H
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

MEMORY PACK CIRCUIT DIAGRAM (MP)

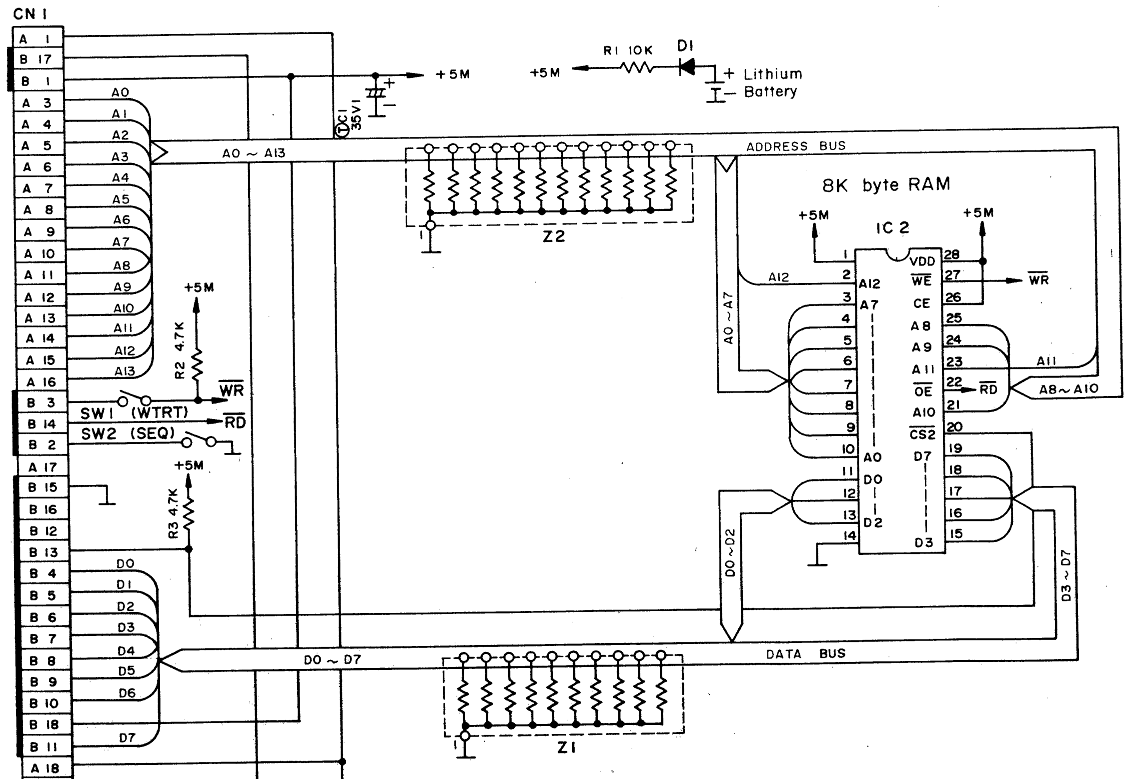
6
7
8
9

SY-P2


CN 1
R1 10K
D1
Lithum Battery
+5M
C1 35V1
Address Bus
A0 ~ A10
Z2
2K byte RAM
IC 1
IC 2
A7
A8
A9
A10
WE
OE
CS1
CS2
VDD
GND
D0
D2
D3
D7
WR
RD
A8 ~ A10
A0 ~ A7
R2 4.7K
R3 4.7K
R4 4.7K
SW1 (WTRT)
SW2 (SEQ)
Data Bus
D0 ~ D7
D0 ~ D2
D3 ~ D7
Z1

NOTES:
- IC'S
  - IC1, 2: SVIGM51282OR
- DIODE
  - D1: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1, 2: EXBEQ10104MM

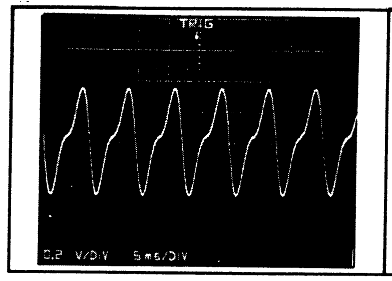
SY-P3


CN I
R1 10K
DI
Lithium Battery
+5M
C1 35V1
ADDRESS BUS
A0 ~ A13
Z2
8K byte RAM
IC 2
A12
A7
A8
A9
A11
A10
WE
CE
OE
CS2
VDD
D0
D2
D3
D7
WR
RD
A8 ~ A10
A0 ~ A7
R2 4.7K
R3 4.7K
SW1 (WTRT)
SW2 (SEQ)
DATA BUS
D0 ~ D7
D0 ~ D2
D3 ~ D7
Z1

NOTES:
- IC
  - IC2: SVIG6264LP15
- DIODE
  - D1: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1: EXBEQ10104MM
  - Z2: EXBEQ12104MM

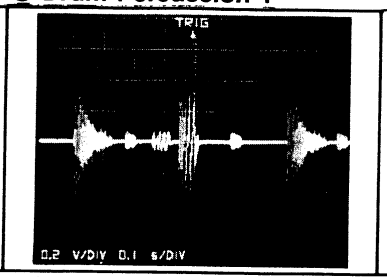
MIXING 2 CIRCUIT BOARD (MIX2)

② Bass

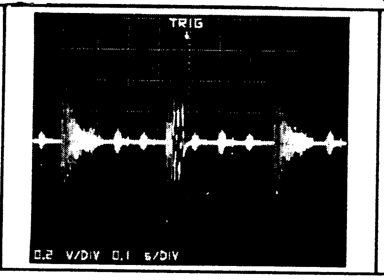


- Bass.....Bass 8' • Pedal Key.....C2
- Main Vol, Pedal Vol, EXP.....Max

③ Drum Percussion 1

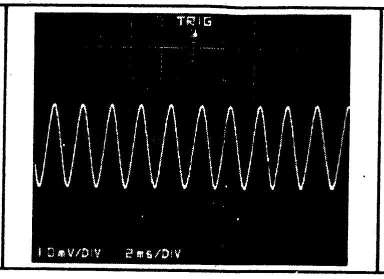


④ Drum Percussion 2



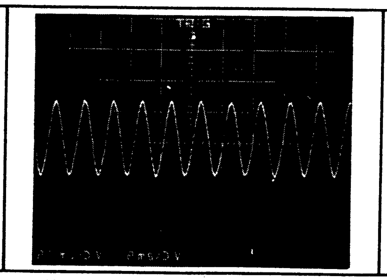
- Rhythm SW.....16 beat • Arrange Percussion.....I
- Rhythm Vol, Main Vol, EXP.....max

⑤



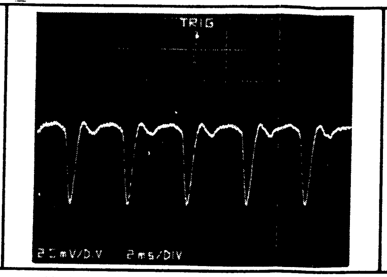
- Upper Tab.....Flute 8' • Volume.....max
- Upper Key.....C4 • Celeste.....U. Tab ON

⑥



- Upper Tab.....Flute 8' • Volume.....max
- Upper Key.....C4

⑦

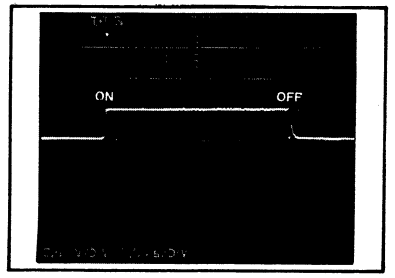


- U. Orchestral Presets.....Trumpet
- Volume.....max • Upper Key.....C4
- Harmonic Control.....Center

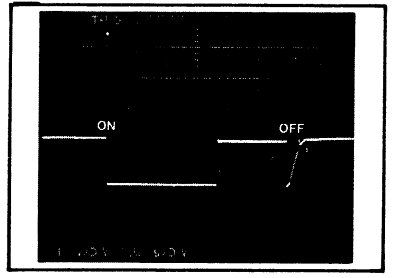
⑧ Main Vol, EXP Control

- EXP Pedal............max
- Main Volume Control
  - step 1.................... – 3.32V
  - step 2.................... – 2.35V
  - step 3.................... – 1.37V
  - step 4.................... – 0.35V
- Main Vol, EXP......Min: – 11.93V

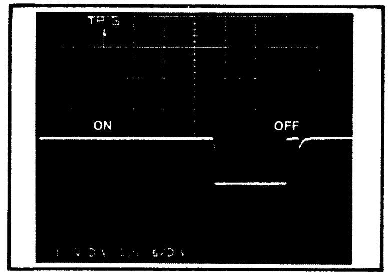
⑨ Power ON—OFF

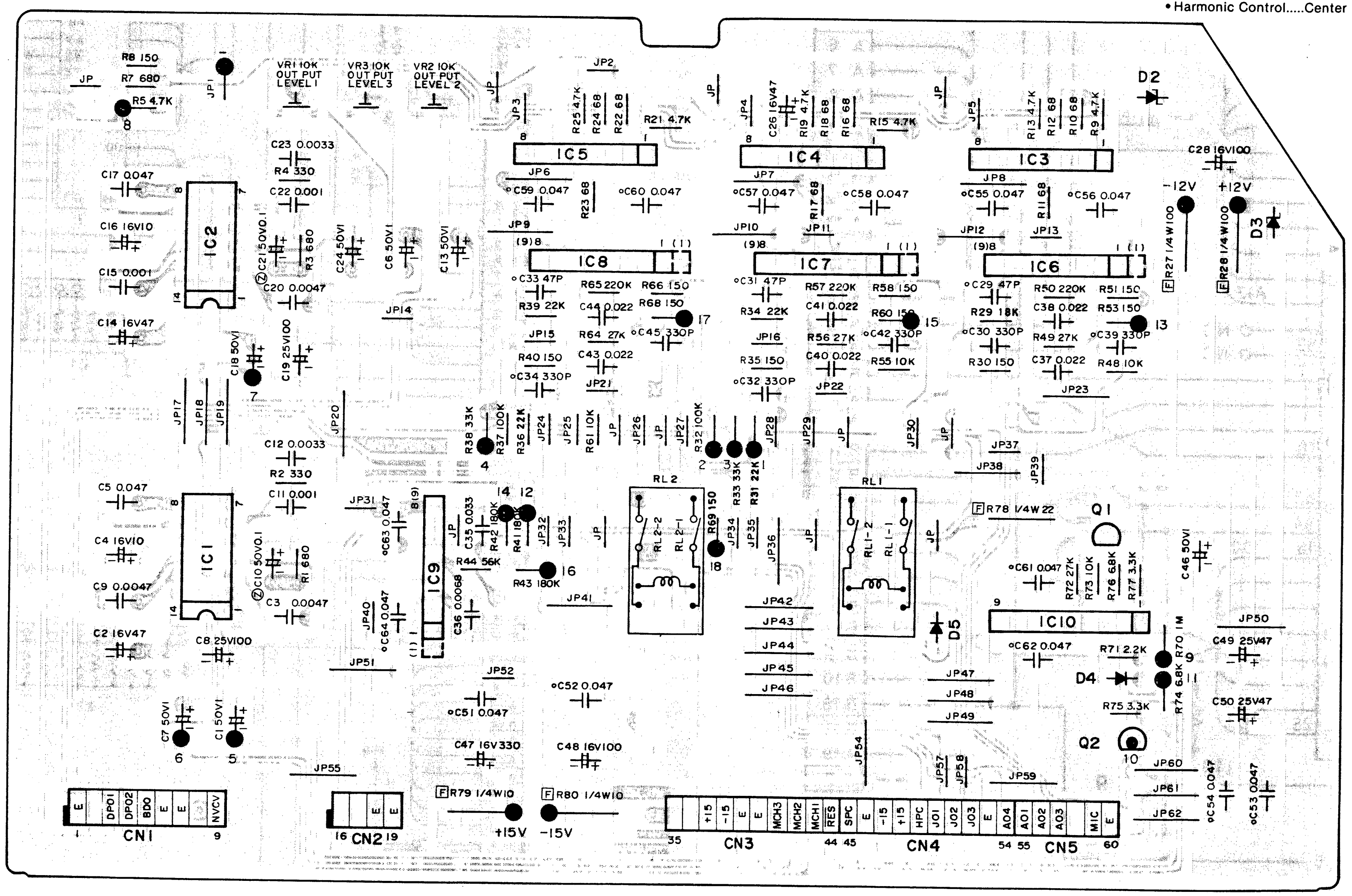


⑩ POEWR ON—OFF



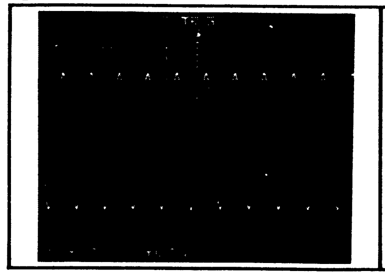
⑪ POWER ON—OFF



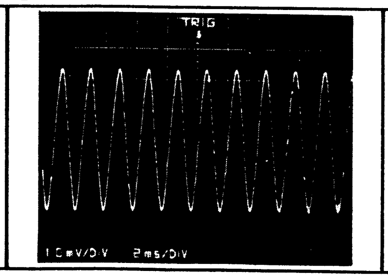

VR1 10K OUT PUT LEVEL 1
VR3 10K OUT PUT LEVEL 3
VR2 10K OUT PUT LEVEL 2
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
RL1
RL2
Q1
Q2
D2
D3
D4
D5
-12V
+12V
+15V
-15V
CN1
CN2
CN3
CN4
CN5
R79 1/4W10
R80 1/4W10
R78 1/4W 22
R27 1/4W100
R28 1/4W100

SXPGB12141

⑫

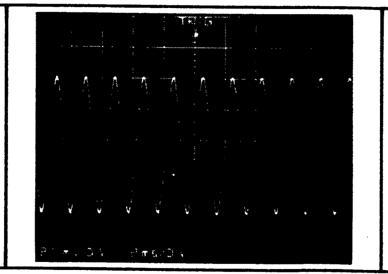


⑬

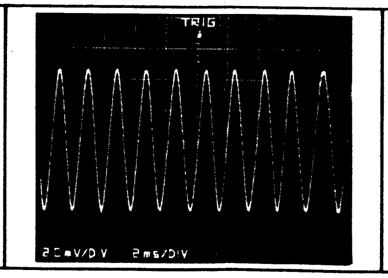


- Upper Tab......................Flute 8'
- Celeste...........................U. Tab ON
- Main Vol, EXP...............max
- Volume............................max
- Upper Key.......................C4

⑭

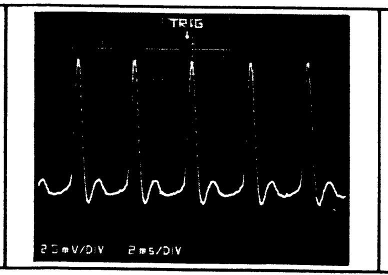


⑮

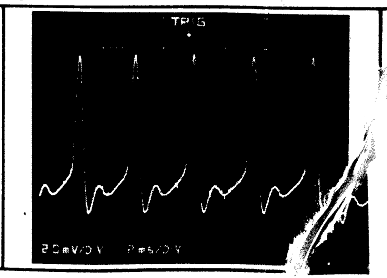


- Upper Tab......................Flute 8'
- Upper Key.......................C4
- Volume............................max
- Main Vol, EXP...............max

⑯

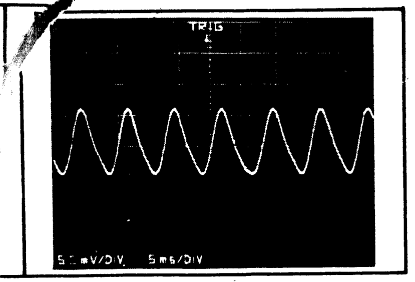


⑰



- Orchestral Presets.......Trumpet
- Harmonic Control.........Center
- Main Vol, EXP...............max
- Volume............................max
- Upper Key.......................C4

⑱

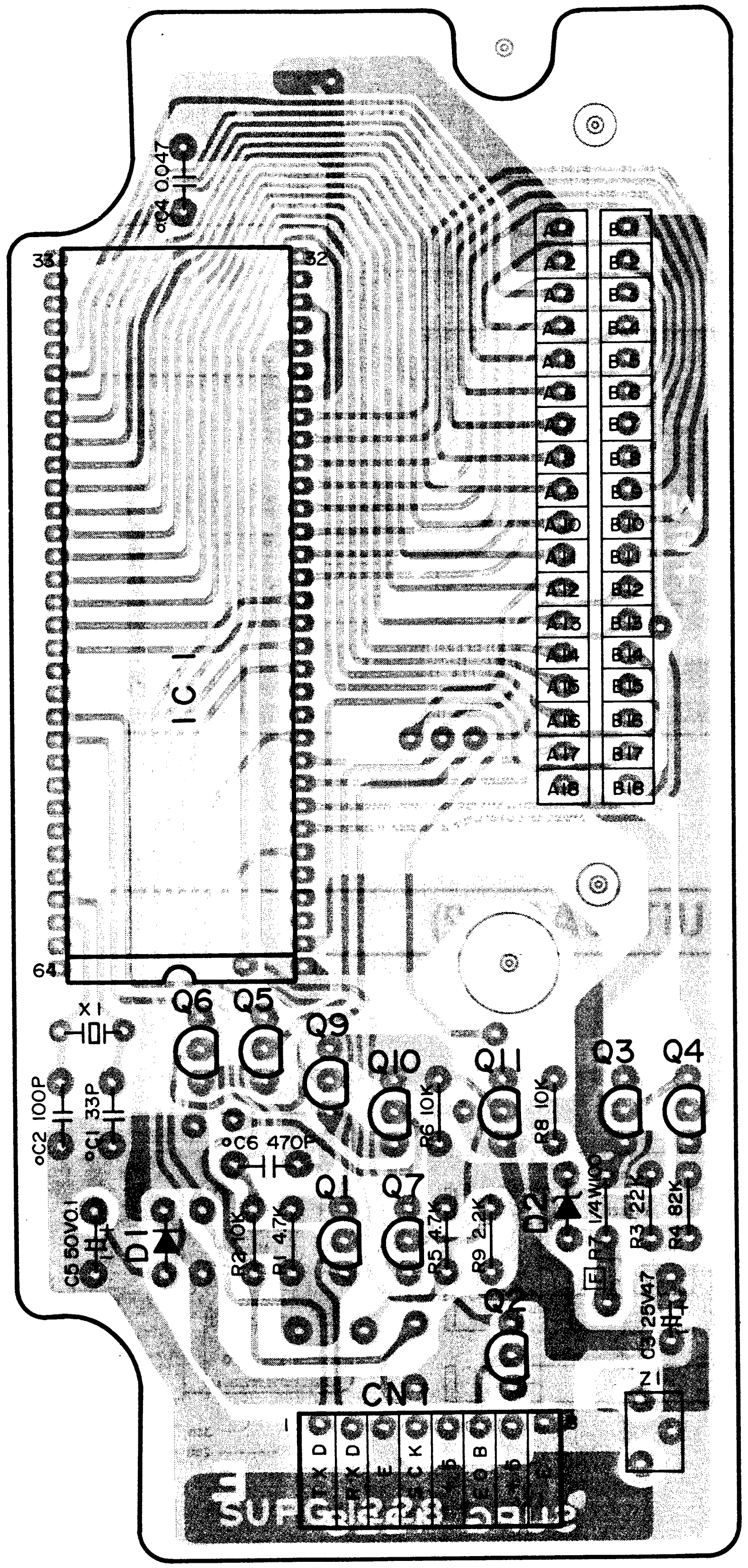


- Bass.....Bass 8' • Pedal Key.....C2
- M. Vol, Bass Vol, EXP................max

MEMORY PACK CONTROL CIRCUIT BOARD (MPC)

Circuit view on top of P.C.B.

SXPG12281



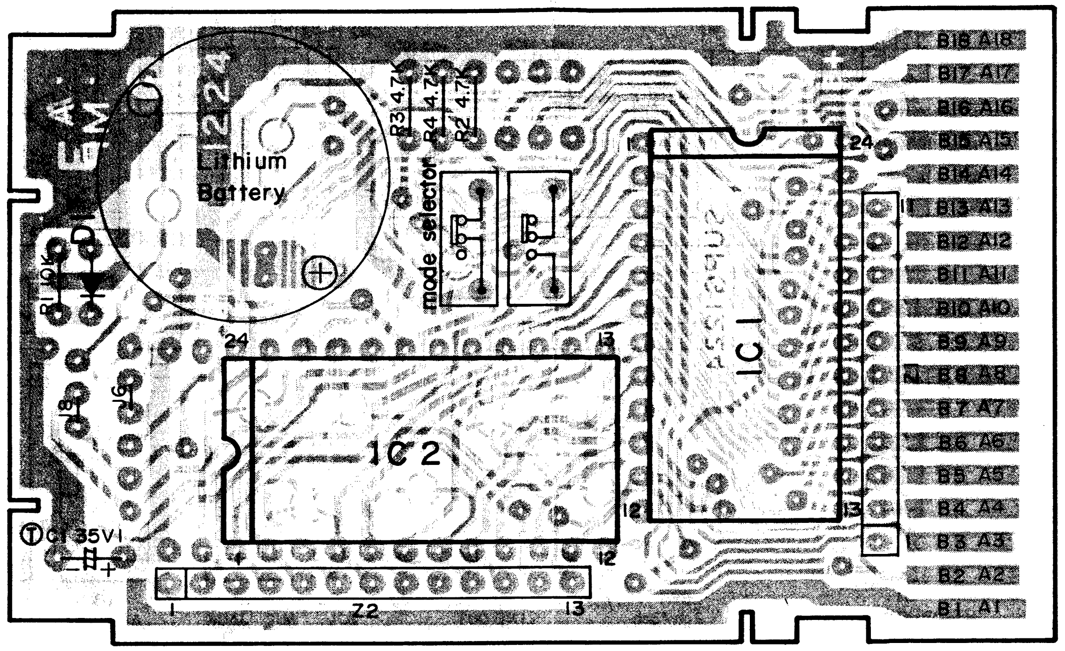
1
2
3
4
5
A
B
C
D
E
F
C4 0.047
33
32
64
IC1
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
A18
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15
B16
B17
B18
X1
Q6
Q5
Q9
Q10
Q11
Q3
Q4
C2 100P
C1 33P
C6 470P
R6 10K
R8 10K
Q1
Q7
D2
R7 1/4W100
R3 22K
R4 82K
C5 50V0.1
D1
R2 10K
R1 4.7K
R5 4.7K
R9 2.2K
Q2
C3 25V47
Z1
CN1
1

MEMORY PACK CIRCUIT BOARD (MP)

Circuit view on top of P.C.B.

SY-P2

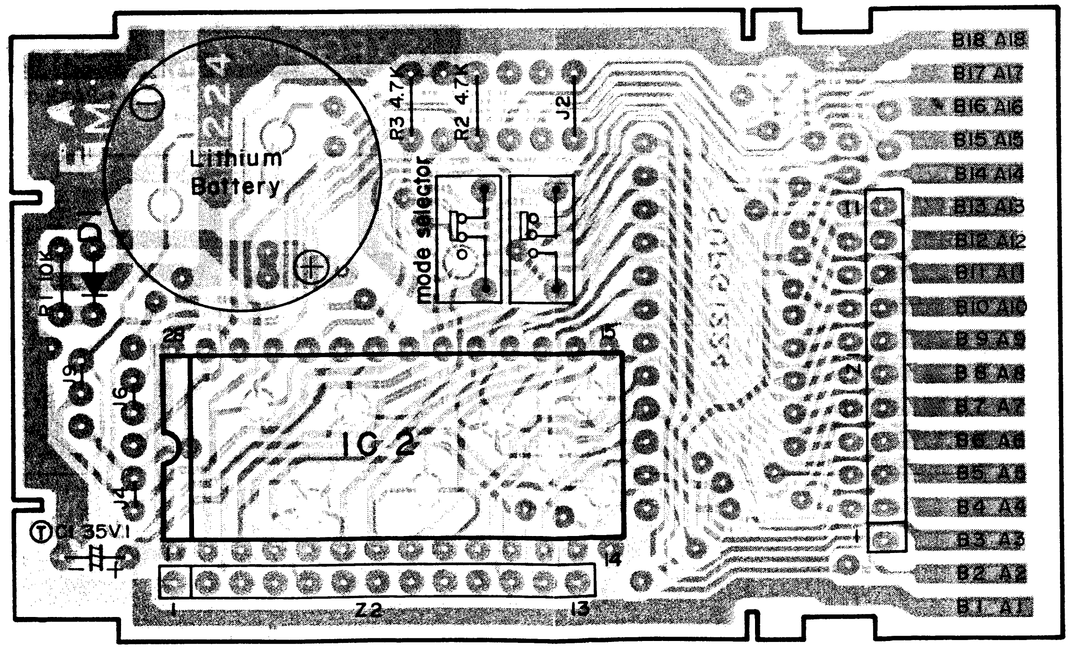
SXPG12241



1
2
3
4
A
B
C
Lithium Battery
R3 4.7K
R4 4.7K
R2 4.7K
mode selector
R1 10K
D1
J6
24
13
12
1
IC1
IC2
24
C1 35V1
Z2
13
B18 A18
B17 A17
B16 A16
B15 A15
B14 A14
B13 A13
B12 A12
B11 A11
B10 A10
B9 A9
B8 A8
B7 A7
B6 A6
B5 A5
B4 A4
B3 A3
B2 A2
B1 A1

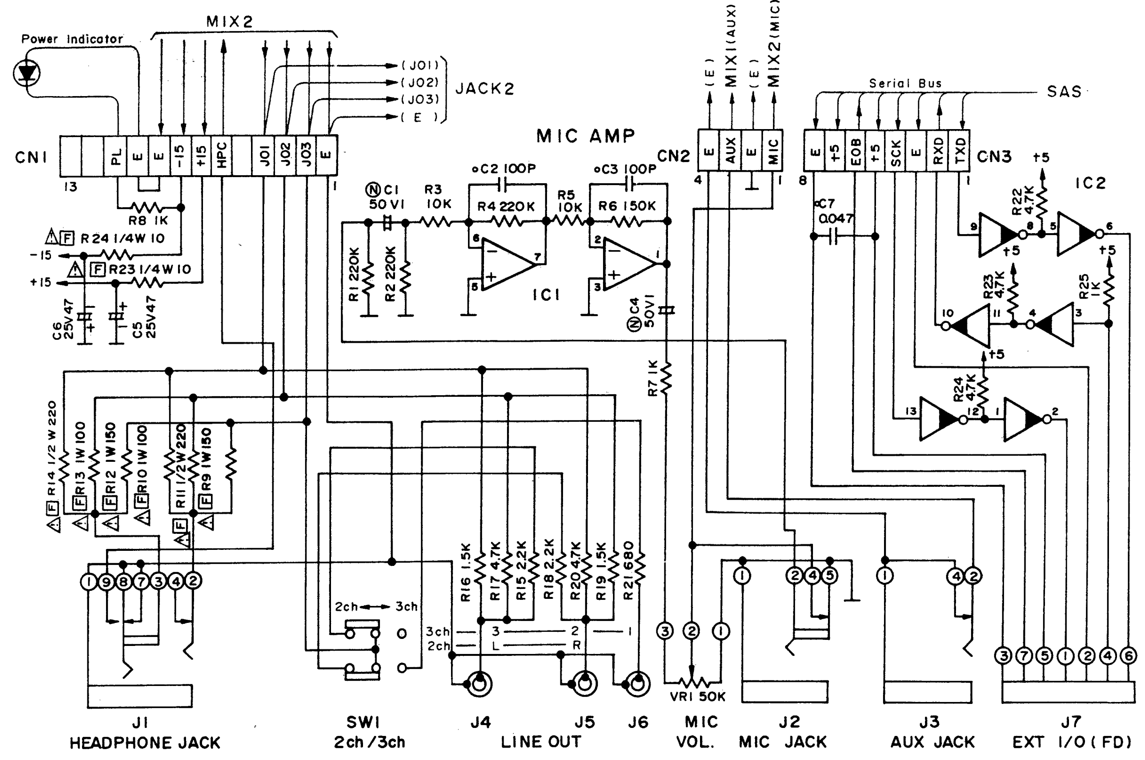
SY-P3

SXPG12242



D
E
F
Lithium Battery
R3 4.7K
R2 4.7K
J2
mode selector
R1 10K
D1
J6
28
IC2
14
C1 35V1
Z2
1
13
B18 A18
B17 A17
B16 A16
B15 A15
B14 A14
B13 A13
B12 A12
B11 A11
B10 A10
B9 A9
B8 A8
B7 A7
B6 A6
B5 A5
B4 A4
B3 A3
B2 A2
B1 A1

JACK 1 CIRCUIT DIAGRAM (JACK 1)



Power Indicator
MIX2
(JO1)
(JO2)
(JO3)
(E)
JACK2
CN1
PL
E
E
-15
+15
HPC
JO1
JO2
JO3
E
R8 1K
R24 1/4W 10
R23 1/4W 10
-15
+15
C6 25V47
C5 25V47
MIC AMP
C1 50V1
R3 10K
C2 100P
R4 220K
R5 10K
C3 100P
R6 150K
R1 220K
R2 220K
IC1
C4 50V1
R7 1K
CN2
E
MIX1(AUX)
E
MIX2(MIC)
AUX
MIC
Serial Bus
SAS
CN3
+5
EOB
SCK
RXD
TXD
C7 0.047
R22 4.7K
R23 4.7K
R24 4.7K
R25 1K
IC2
R14 1/2W 220
R13 1W 100
R12 1W 150
R10 1W 100
R11 1/2W 220
R9 1W 150
R16 1.5K
R17 4.7K
R15 2.2K
R18 2.2K
R20 4.7K
R19 1.5K
R21 680
2ch
3ch
L
R
VR1 50K
J1 HEADPHONE JACK
SW1 2ch/3ch
J4
J5
J6
LINE OUT
MIC VOL.
J2 MIC JACK
J3 AUX JACK
J7 EXT I/O (FD)

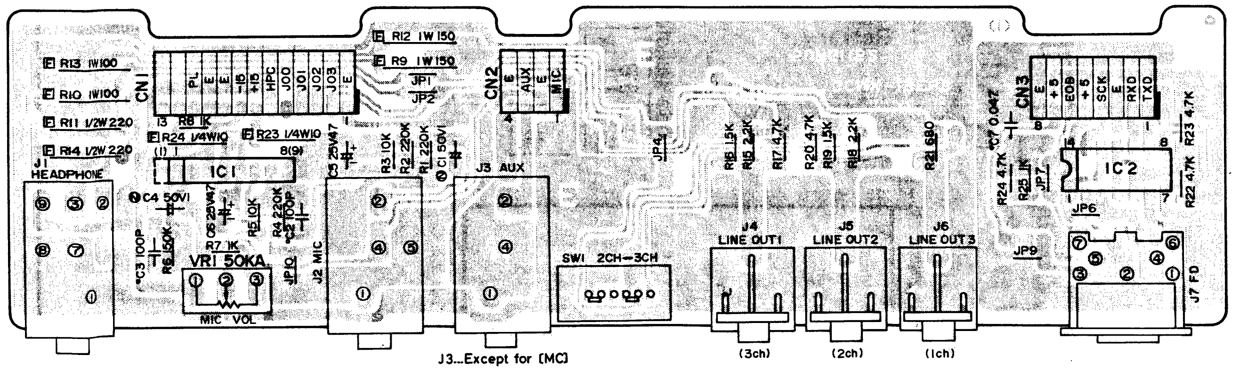
NOTE:
- IC'S

IC1: SVIGM5218L
(SVIGNJM4558S)
IC2: SVIGM74LS05

JACK 1 CIRCUIT BOARD (JACK 1)

SXPG11527 **SXPG11528**

* Products for [MC] only

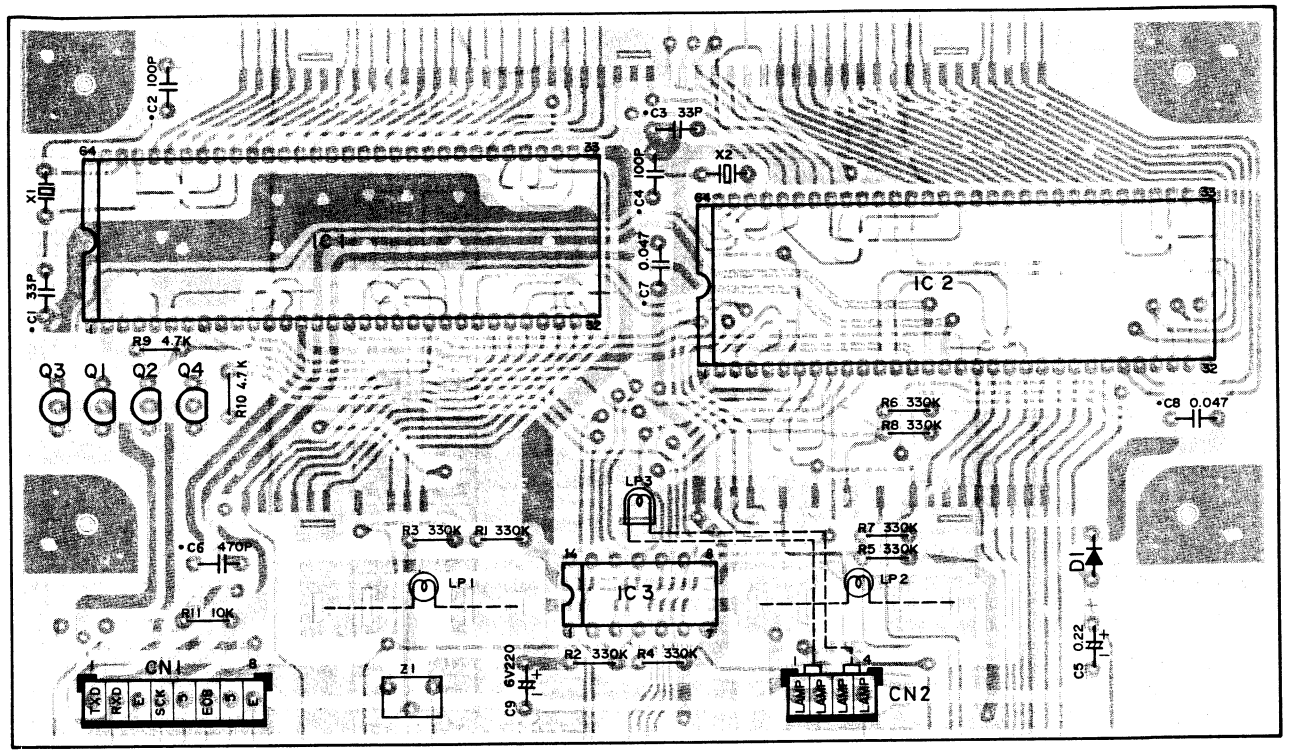


R13 1W100
R10 1W100
R11 1/2W220
R14 1/2W220
J1 HEADPHONE
CN1
R8 1K
R23 1/4W10
R24 1/4W10
IC1
R12 1W150
R9 1W150
JP1
JP2
CN2
C4 50V1
C3 100P
R5 10K
R7 1K
VR1 50KA
MIC VOL
JP10
J2 MIC
R3 10K
R2 220K
R1 220K
J3 AUX
J3...Except for [MC]
SW1 2CH↔3CH
JP4
R16 1.5K
R15 2.2K
R17 4.7K
R20 4.7K
R19 1.5K
R18 2.2K
R21 680
J4 LINE OUT1 (3ch)
J5 LINE OUT2 (2ch)
J6 LINE OUT3 (1ch)
C7 0.047
CN3
IC2
JP6
JP9
R24 4.7K
R25 1K
R22 4.7K
R23 4.7K
J7 FD

MUSICAL DISPLAY CIRCUIT BOARD (MD)

Circuit view on top of P.C.B.

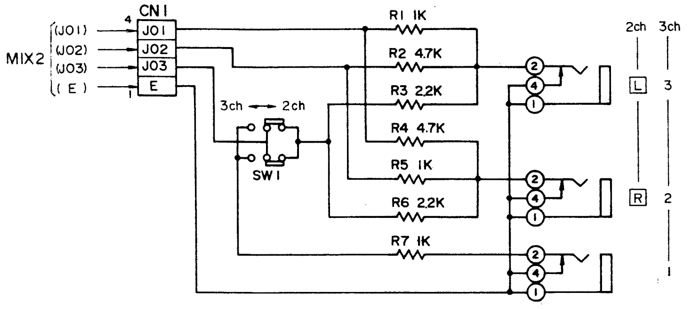
SXEG31A



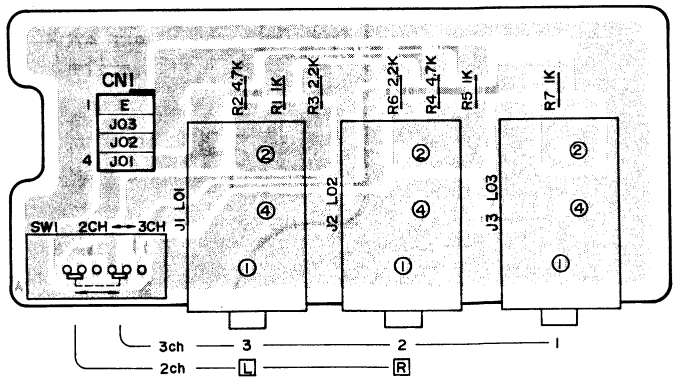
C2 100P
C3 33P
C4 100P
X1
X2
C1 33P
C7 0.047
IC1
IC2
R9 4.7K
Q3
Q1
Q2
Q4
R10 4.7K
R6 330K
R8 330K
C8 0.047
LP3
R3 330K
R1 330K
C6 470P
LP1
R11 10K
IC3
R7 330K
R5 330K
LP2
D1
C5 0.22
CN1
TXD
RXD
SCK
EOB
Z1
C9 6V220
R2 330K
R4 330K
CN2

JACK 2 CIRCUIT (JACK 2)

SXPG12161

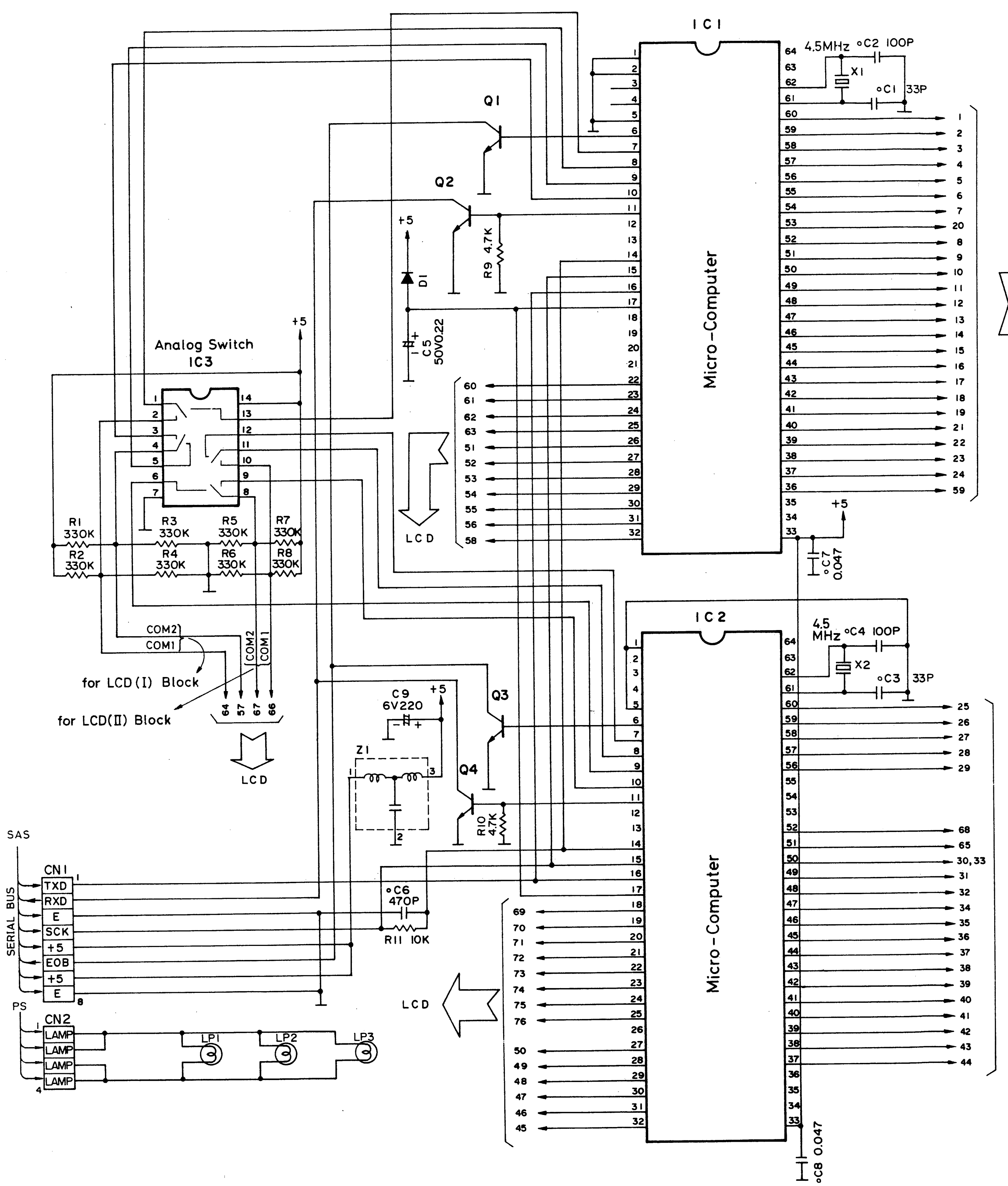


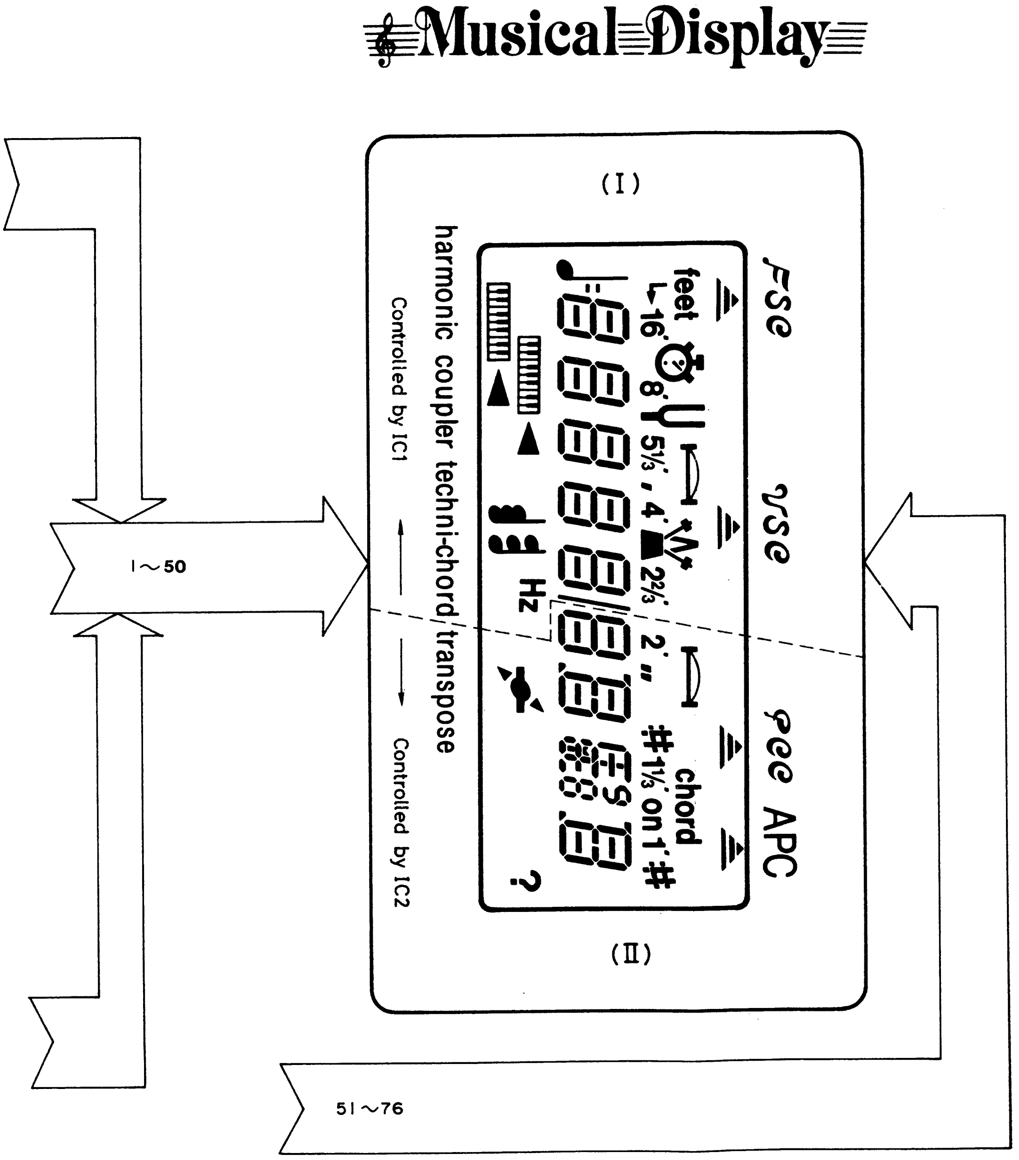
MIX2
(JO1)
(JO2)
(JO3)
(E)
CN1
JO1
JO2
JO3
E
R1 1K
R2 4.7K
R3 2.2K
R4 4.7K
R5 1K
R6 2.2K
R7 1K
3ch
2ch
SW1
L
R



CN1
E
JO3
JO2
JO1
R2 4.7K
R1 1K
R3 2.2K
R6 2.2K
R4 4.7K
R5 1K
R7 1K
J1 LO1
J2 LO2
J3 LO3
SW1 2CH→3CH
3ch
2ch
3
2
1
L
R

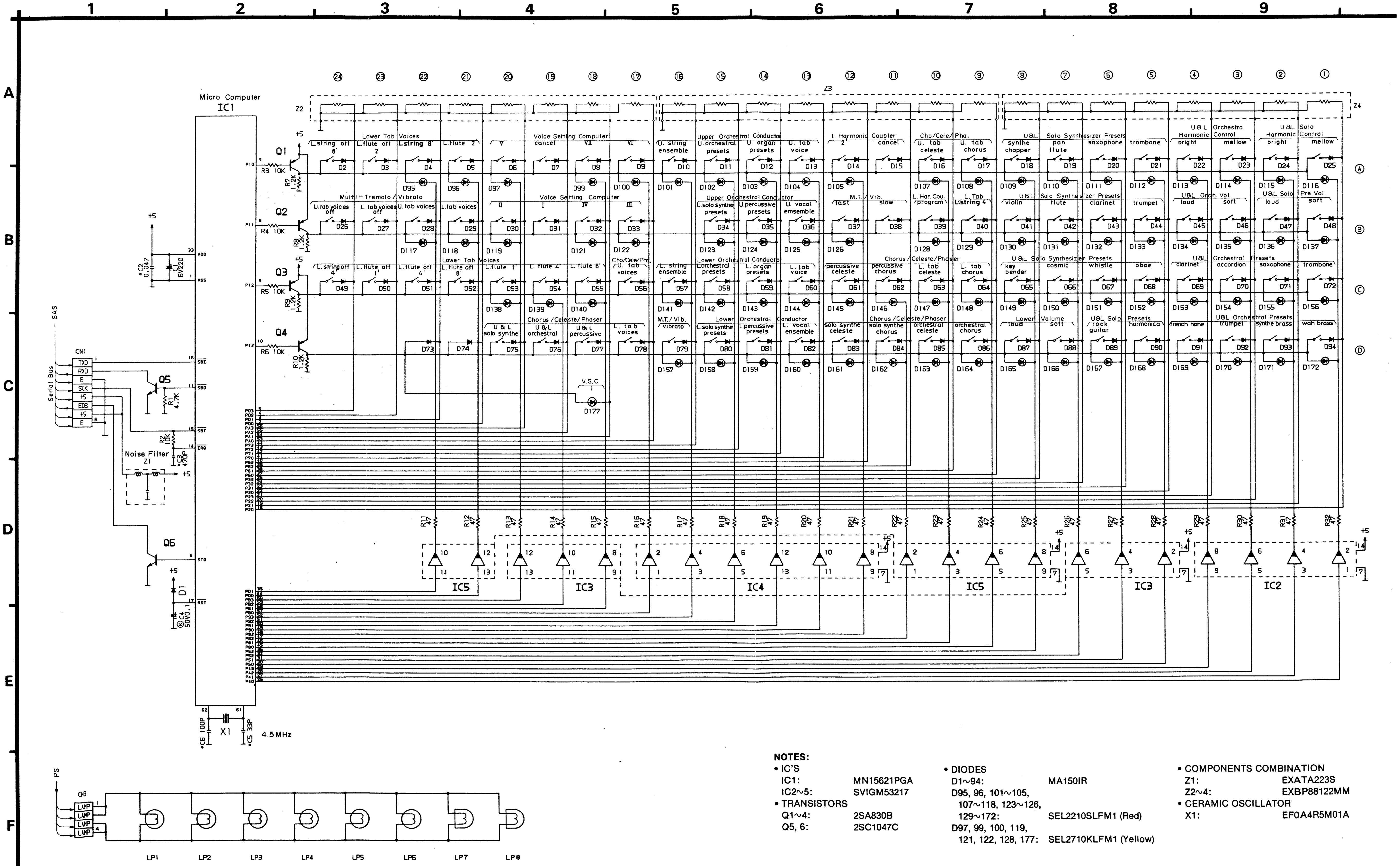
MUSICAL DISPLAY CIRCUIT DIAGRAM (MD)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
IC1
Micro-Computer
4.5MHz
X1
C1 33P
C2 100P
C7 0.047
+5
Q1
Q2
R9 4.7K
D1
C5 50V022
Analog Switch
IC3
R1 330K
R2 330K
R3 330K
R4 330K
R5 330K
R6 330K
R7 330K
R8 330K
COM2
COM1
for LCD(I) Block
for LCD(II) Block
LCD
IC2
4.5 MHz
X2
C3 33P
C4 100P
C8 0.047
C9 6V220
Z1
Q3
Q4
R10 4.7K
C6 470P
R11 10K
SAS
SERIAL BUS
CN1
TXD
RXD
E
SCK
+5
EOB
PS
CN2
LAMP
LP1
LP2
LP3


Musical Display
(I)
(II)
1~50
51~76
harmonic coupler techni-chord transpose
Controlled by IC1
Controlled by IC2
feet
16'
8'
5⅓'
4'
2⅔'
2'
1⅓'
#
chord
on
Hz
APC
?

NOTES:
- IC'S
  - IC1, 2: MN15621PGA
  - IC3: SVIGUPD4066B
- TRANSISTORS
  - Q1, 3: 2SC1685R,Q
  - Q2, 4: 2SC1047C
- DIODE
  - D1: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATORS
  - X1, 2: EF0A4R5M01A

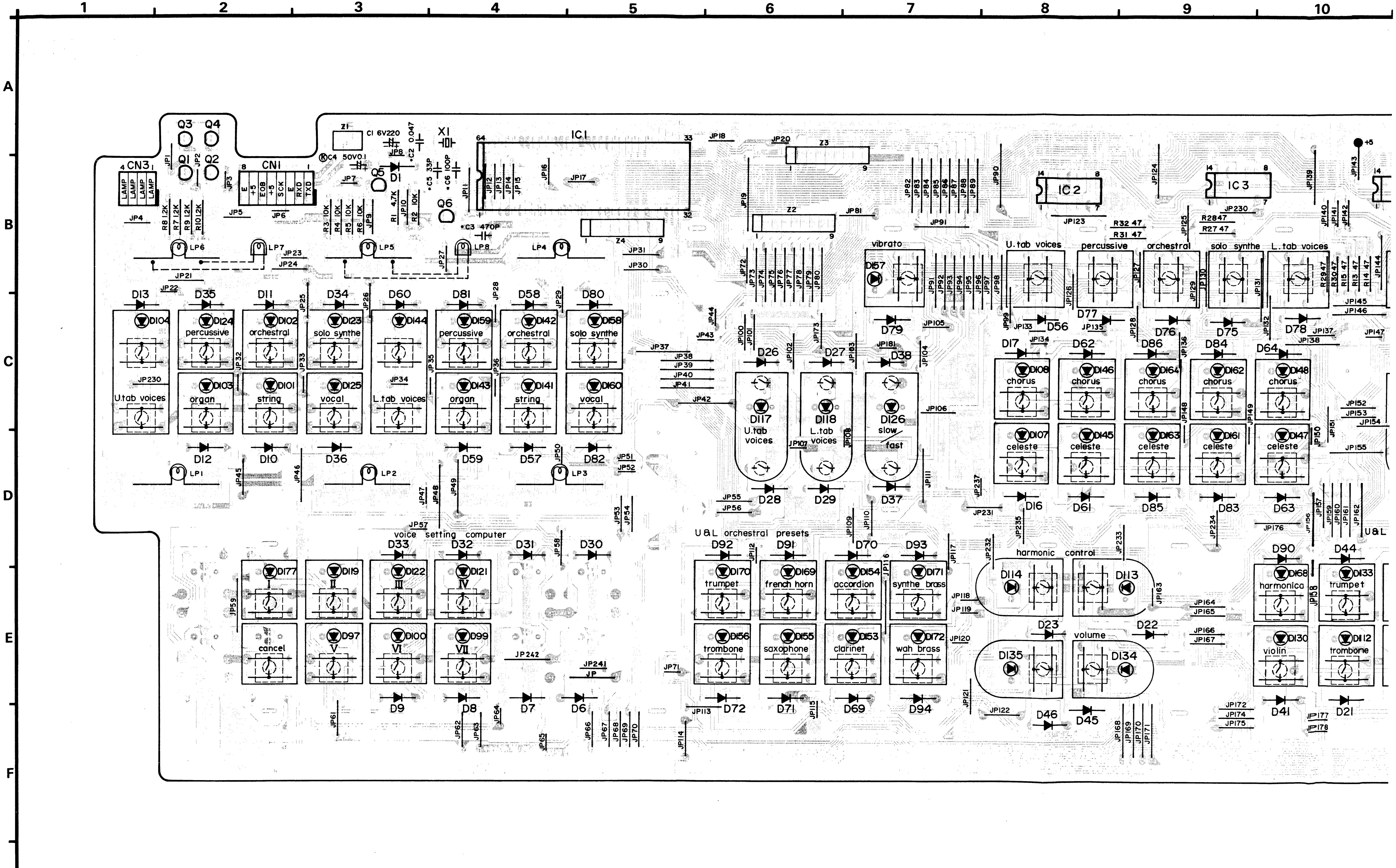
U. CONTROL PANEL RIGHT CIRCUIT DIAGRAM(CPR)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
Z2
Z3
Z4
Q1
Q2
Q3
Q4
Q5
Q6
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
R1 4.7K
R2 10K
C3 470P
+5
C2 0.047
C1 6V220
VDD
VSS
SAS
Serial Bus
CN1
TXD
RXD
E
SCK
+5
EOB
E
SBI
SBO
SBT
IRQ
STO
RST
Noise Filter
Z1
D1
C4 50V0.1
C6 100P
X1
C5 33P
4.5MHz
PS
CN3
LAMP
LP1
LP2
LP3
LP4
LP5
LP6
LP7
LP8
Lower Tab Voices
L.string off 8'
L.flute off 2
L.string 8'
L.flute 2'
Voice Setting Computer
V
cancel
VII
VI
U. string ensemble
Upper Orchestral Conductor
U. orchestral presets
U. organ presets
U. tab voice
L. Harmonic Coupler
2'
cancel
Cho/Cele/Pha.
U. tab celeste
U. tab chorus
U&L Solo Synthesizer Presets
synthe chopper
pan flute
saxophone
trombone
U&L Harmonic
bright
Orchestral Control
mellow
U&L Harmonic
bright
Solo Control
mellow
Multi-Tremolo/Vibrato
U.tab voices off
L.tab voices off
U. tab voices
L.tab voices
Voice Setting Computer
II
I
IV
III
Upper Orchestral Conductor
U.solo synthe presets
U.percussive presets
U. vocal emsemble
M.T./Vib.
fast
slow
L. Har. Cou.
program
L. Tab
L.string 4'
U&L Solo Synthesizer Presets
violin
flute
clarinet
trumpet
U&L Orch. Vol
loud
soft
U&L Solo Pre. Vol.
loud
soft
Lower Tab Voices
L.string off 4'
L. flute off 1'
L. flute off 4'
L. flute off 8
L. flute 1'
L. flute 4'
L. flute 8'
Cho/Cele/Pha.
U. tab voices
L. string ensemble
Lower Orchestral Conductor
L.orchestral presets
L. organ presets
L. tab voice
Chorus/Celeste/Phaser
percussive celeste
percussive chorus
L. tab celeste
L. tab chorus
U&L Solo Synthesizer Presets
key bender
cosmic
whistle
oboe
U&L Orchestral Presets
clarinet
accordion
saxophone
trombone
Chorus/Celeste/Phaser
U & L solo synthe
U&L orchestral
U&L percussive
L. tab voices
M.T./Vib.
vibrato
Lower Orchestral Conductor
L.solo synthe presets
L.percussive presets
L. vocal ensemble
solo synthe celeste
solo synthe chorus
orchestral celeste
orchestral chorus
Lower Volume
loud
soft
U&L Solo Presets
rock guitar
harmonica
french hone
U&L Orchestral Presets
trumpet
synthe brass
wah brass
V.S.C
I
D177
IC2
IC3
IC4
IC5
R11 47
R12 47
R13 47
R14 47
R15 47
R16 47
R17 47
R18 47
R19 47
R20 47
R21 47
R22 47
R23 47
R24 47
R25 47
R26 47
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
㉔
㉓
㉒
㉑
⑳
⑲
⑱
⑰
⑯
⑮
⑭
⑬
⑫
⑪
⑩
⑨
⑧
⑦
⑥
⑤
④
③
②
①
Ⓐ
Ⓑ
Ⓒ
Ⓓ

NOTES:

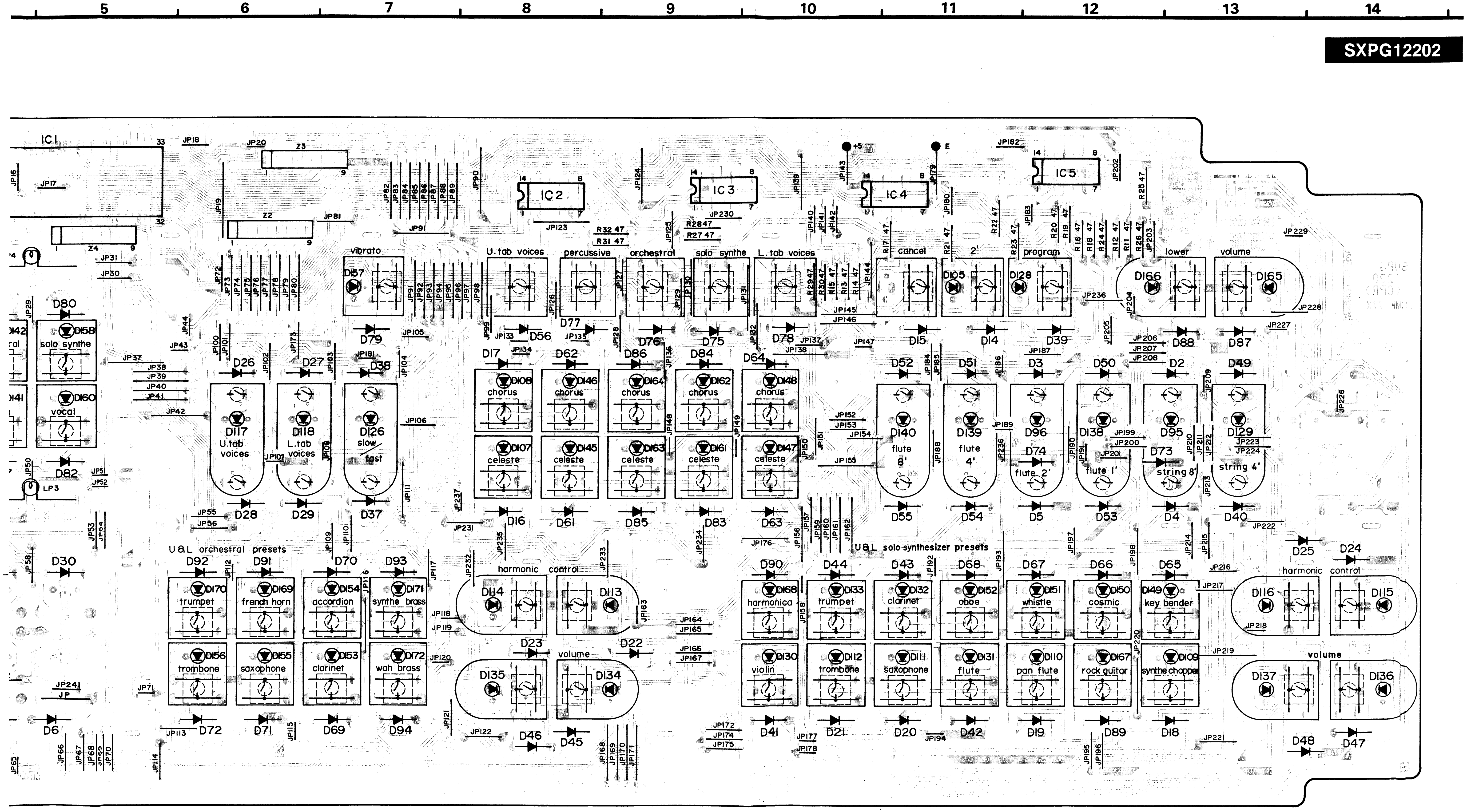
- IC'S
  - IC1: MN15621PGA
  - IC2~5: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~94: MA150IR
  - D95, 96, 101~105, 107~118, 123~126, 129~172: SEL2210SLFM1 (Red)
  - D97, 99, 100, 119, 121, 122, 128, 177: SEL2710KLFM1 (Yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
  - Z2~4: EXBP88122MM
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

U. CONTROL PANEL RIGHT CIRCUIT BOARD (CPR)

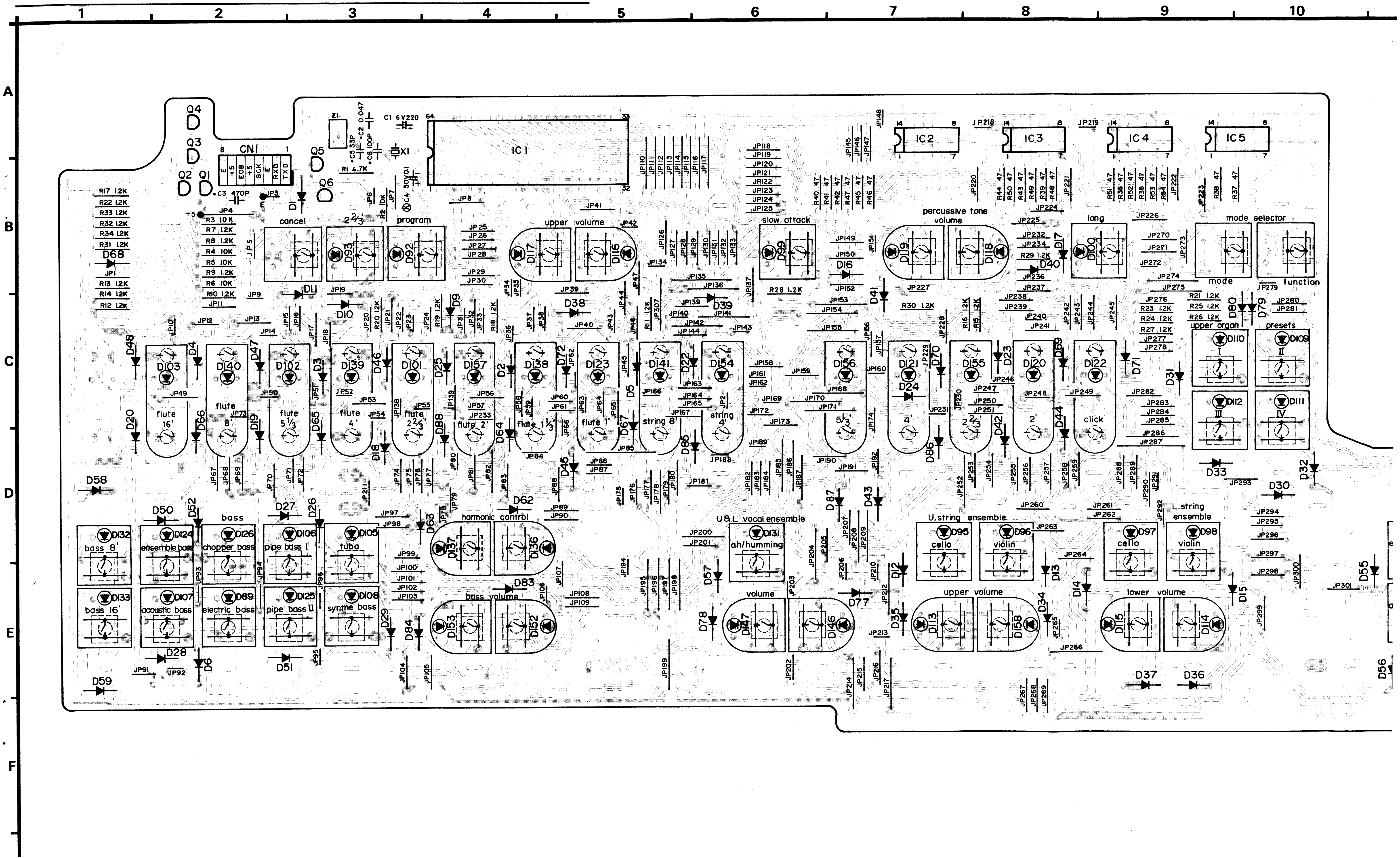


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
CN3
LAMP
CN1
E
+5
E08
SCK
RXD
TXD
Q1
Q2
Q3
Q4
Q5
Q6
Z1
Z2
Z3
Z4
X1
IC1
IC2
IC3
C1 6V220
C2 0.047
C3 470P
C4 50V0.1
C5 33P
C6 100P
R1 4.7K
R2 10K
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
R13 47
R14 47
R15 47
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
LP1
LP2
LP3
LP4
LP5
LP6
LP7
LP8
+5
U.tab voices
percussive
orchestral
solo synthe
L.tab voices
organ
string
vocal
vibrato
chorus
celeste
U.tab voices
L.tab voices
slow
fast
voice setting computer
I
II
III
IV
V
VI
VII
cancel
U&L orchestral presets
trumpet
french horn
accordion
synthe brass
trombone
saxophone
clarinet
wah brass
harmonic control
volume
harmonica
violin
trumpet
trombone
U&L

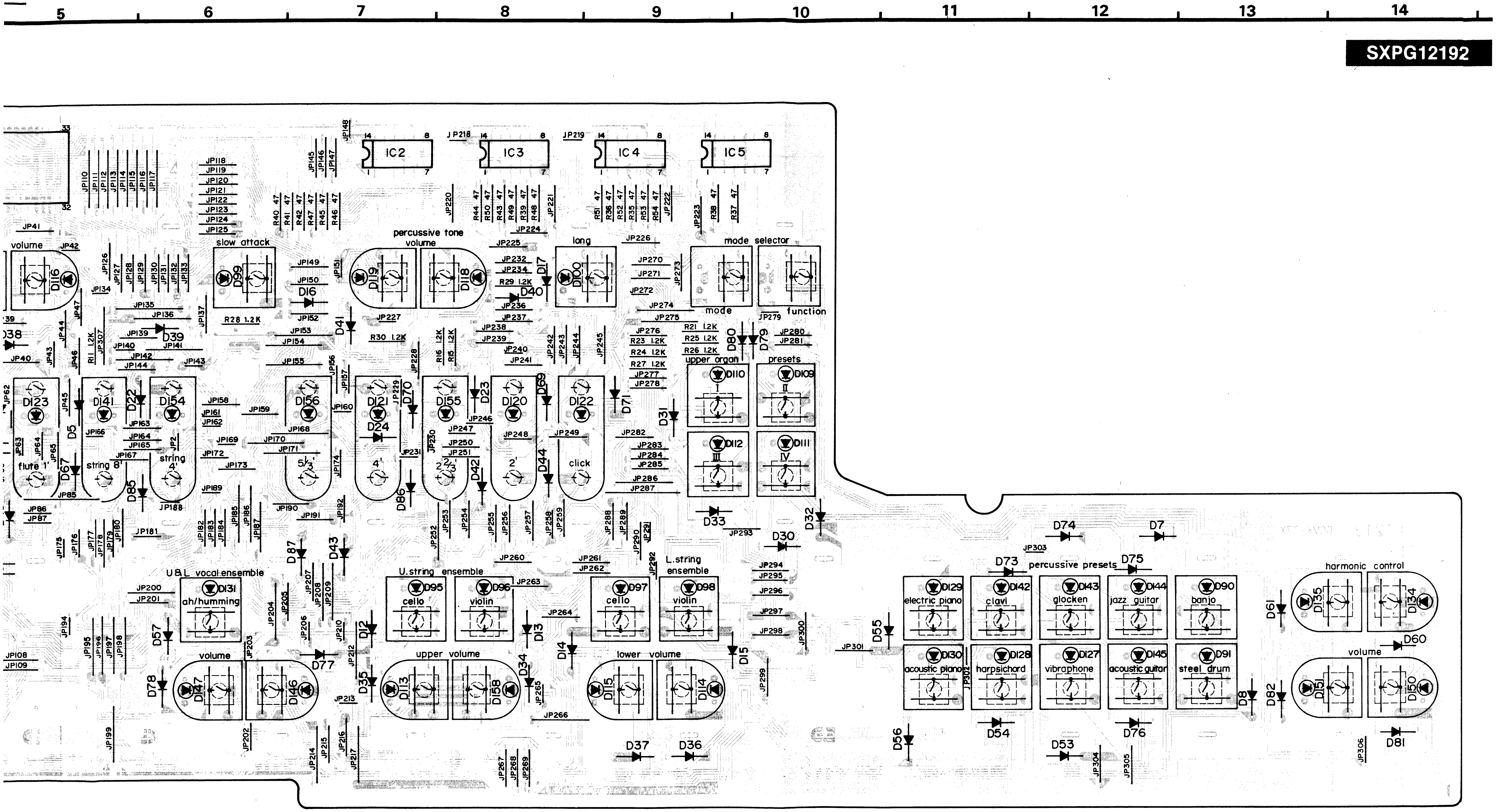
SXPG12202


5
6
7
8
9
10
11
12
13
14
IC1
IC2
IC3
IC4
IC5
Z2
Z3
Z4
+5
E
vibrato
U.tab voices
percussive
orchestral
solo synthe
L.tab voices
cancel
2'
program
lower
volume
D157
D105
D128
D166
D165
solo synthe
D158
vocal
D160
D80
D82
LP3
D26
D27
D38
D117
U.tab voices
D118
L.tab voices
D126
slow
fast
D28
D29
D37
D79
D56
D77
D76
D75
D78
D15
D14
D39
D88
D87
D17
D62
D86
D84
D64
chorus
D108
D146
D164
D162
D148
celeste
D107
D145
D163
D161
D147
D16
D61
D85
D83
D63
D52
D51
D3
D50
D2
D49
D140
flute 8'
D139
flute 4'
D96
D74
flute 2'
D138
flute 1'
D95
D73
string 8'
D129
string 4'
D55
D54
D5
D53
D4
D40
D25
D24
U&L orchestral presets
D92
D91
D70
D93
D30
trumpet
D170
french horn
D169
accordion
D154
synthe brass
D171
trombone
D156
saxophone
D155
clarinet
D153
wah brass
D172
D6
D72
D71
D69
D94
harmonic control
D114
D113
D23
D22
volume
D135
D134
D46
D45
U&L solo synthesizer presets
D90
D44
D43
D68
D67
D66
D65
harmonica
D168
trumpet
D133
clarinet
D132
oboe
D152
whistle
D151
cosmic
D150
key bender
D149
violin
D130
trombone
D112
saxophone
D111
flute
D131
pan flute
D110
rock guitar
D167
synthe chopper
D109
D41
D21
D20
D42
D19
D89
D18
harmonic control
D116
D115
volume
D137
D136
D48
D47

U. CONTROL PANEL LEFT CIRCUIT BOARD (CPL)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
Q1
Q2
Q3
Q4
Q5
Q6
CN1
E
+5
E08
+5
SCK
E
RXD
TXD
Z1
C1 6V220
C2 0.047
C5 33P
C6 100P
X1
R1 4.7K
C3 470P
C4 50V0.1
IC1
IC2
IC3
IC4
IC5
R17 1.2K
R22 1.2K
R33 1.2K
R32 1.2K
R34 1.2K
R31 1.2K
R3 10K
R7 1.2K
R8 1.2K
R4 10K
R5 10K
R9 1.2K
R6 10K
R10 1.2K
R13 1.2K
R14 1.2K
R12 1.2K
R28 1.2K
R30 1.2K
R29 1.2K
R21 1.2K
R25 1.2K
R26 1.2K
R23 1.2K
R24 1.2K
R27 1.2K
cancel
2 2/3
program
upper volume
slow attack
percussive tone volume
long
mode selector
mode
function
upper organ
presets
I
II
III
IV
flute 16'
flute 8'
flute 5 1/3
flute 4'
flute 2 2/3
flute 2'
flute 1 1/3
flute 1'
string 8'
string 4'
5 1/3
4'
2 2/3
2'
click
bass
bass 8'
ensemble bass
chopper bass
pipe bass I
tuba
bass 16'
acoustic bass
electric bass
pipe bass II
synthe bass
harmonic control
bass volume
U&L vocal ensemble
ah/humming
volume
U.string ensemble
cello
violin
L.string ensemble
upper volume
lower volume

SXPG12192



5
6
7
8
9
10
11
12
13
14
IC2
IC3
IC4
IC5
volume
slow attack
percussive tone volume
long
mode selector
mode
function
upper organ
presets
I
II
III
IV
flute 1'
string 8'
string 4'
5 1/3'
4'
2 2/3'
2'
click
U&L vocal ensemble
ah/humming
U.string ensemble
cello
violin
L.string ensemble
upper volume
lower volume
percussive presets
electric piano
clavi
glocken
jazz guitar
banjo
acoustic piano
harpsichord
vibraphone
acoustic guitar
steel drum
harmonic control
R28 1.2K
R29 1.2K
R30 1.2K
R11 1.2K
R16 1.2K
R15 1.2K
R21 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
R27 1.2K
R40 47
R41 47
R42 47
R47 47
R45 47
R46 47
R44 47
R50 47
R43 47
R49 47
R39 47
R48 47
R51 47
R36 47
R52 47
R35 47
R53 47
R54 47
R38 47
R37 47
D116
D99
D119
D118
D100
D123
D141
D154
D156
D121
D155
D120
D122
D110
D109
D112
D111
D131
D95
D96
D97
D98
D147
D146
D113
D158
D115
D114
D129
D142
D143
D144
D90
D130
D128
D127
D145
D91
D135
D134
D151
D150
D16
D17
D24
D38
D39
D40
D41
D22
D23
D5
D67
D85
D70
D71
D69
D44
D42
D86
D31
D80
D79
D33
D32
D30
D74
D7
D73
D75
D87
D43
D57
D78
D77
D12
D35
D13
D34
D14
D15
D55
D56
D54
D53
D76
D37
D36
D8
D82
D61
D60
D81
JP41
JP42
JP40
JP43
JP44
JP45
JP46
JP47
JP62
JP63
JP64
JP65
JP85
JP86
JP87
JP108
JP109
JP110
JP111
JP112
JP113
JP114
JP115
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JP117
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JP152
JP153
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JP214
JP215
JP216
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JP219
JP220
JP221
JP222
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JP230
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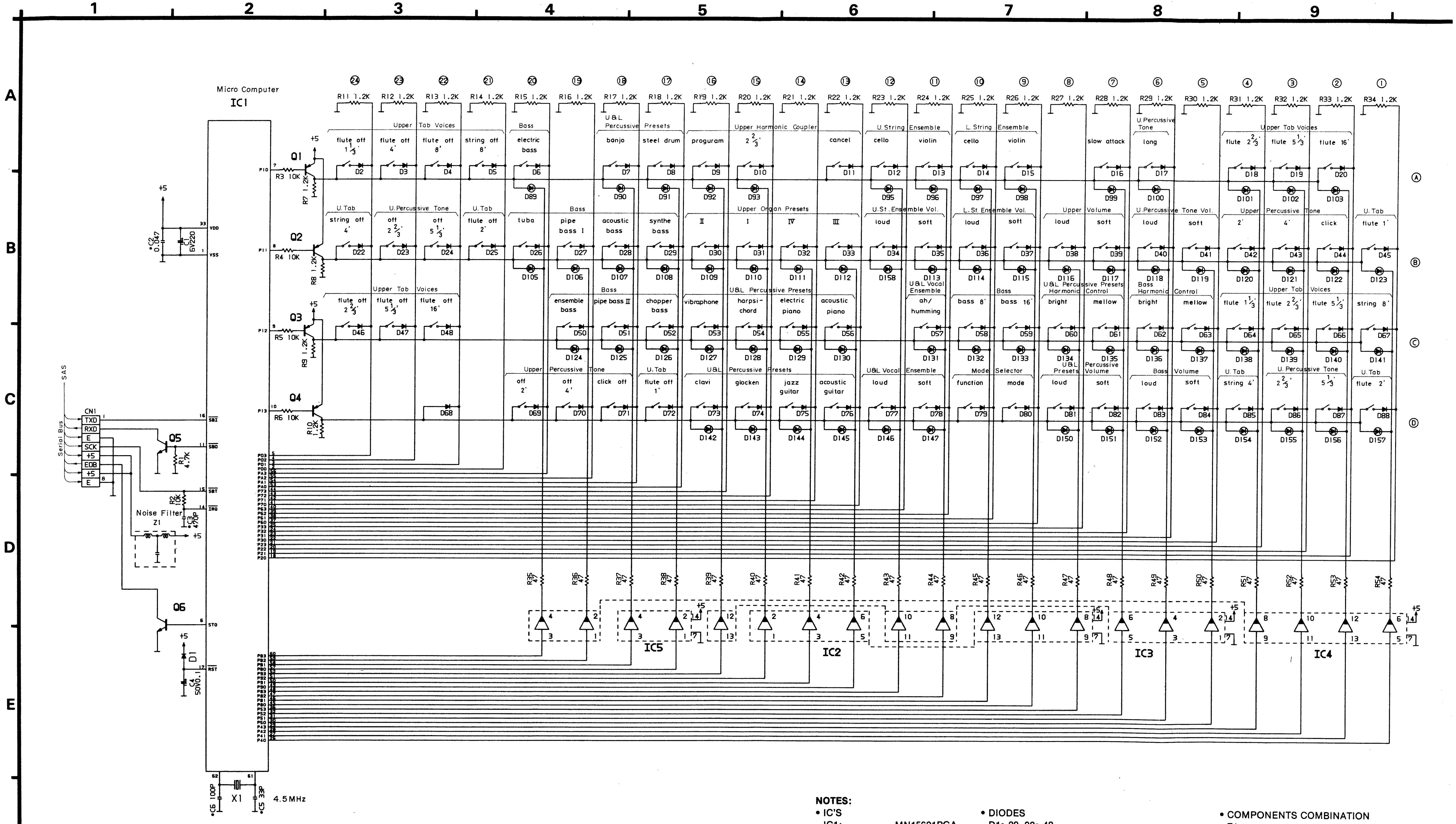
JP250
JP251
JP252
JP253
JP254
JP255
JP256
JP257
JP258
JP259
JP260
JP261
JP262
JP263
JP264
JP265
JP266
JP267
JP268
JP269
JP270
JP271
JP272
JP273
JP274
JP275
JP276
JP277
JP278
JP279
JP280
JP281
JP282
JP283
JP284
JP285
JP286
JP287
JP288
JP289
JP290
JP291
JP292
JP293
JP294
JP295
JP296
JP297
JP298
JP299
JP300
JP301
JP302
JP303
JP304
JP305
JP306
JP307

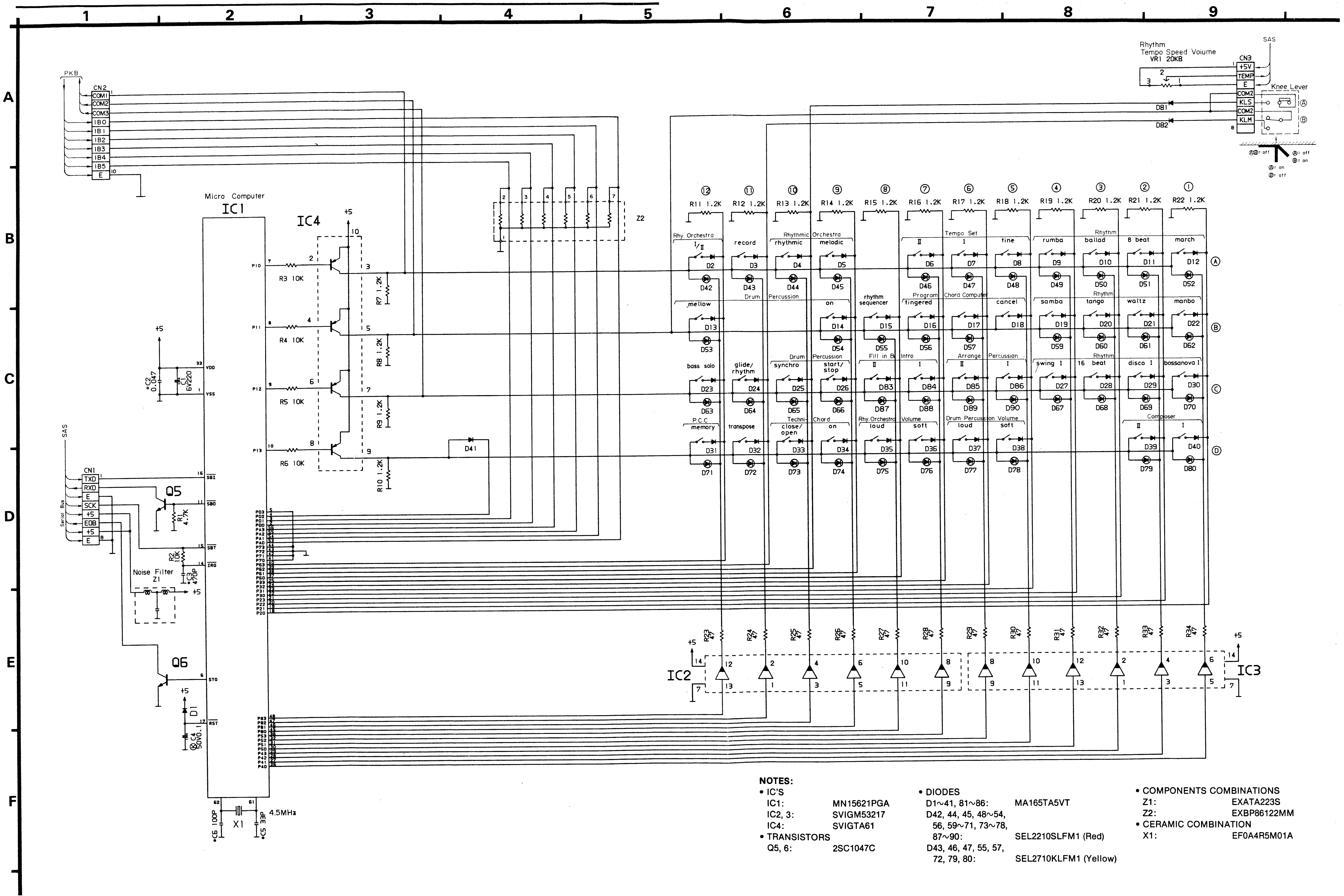
U. CONTROL PANEL LEFT CIRCUIT DIAGRAM (CPL)


Micro Computer
IC1
Q1
Q2
Q3
Q4
Q5
Q6
IC2
IC3
IC4
IC5
CN1
TXD
RXD
SCK
EOB
Serial Bus
SAS
Noise Filter
Z1
X1
4.5MHz
Upper Tab Voices
flute off 1 1/3'
flute off 4'
flute off 8'
string off 8'
Bass
electric bass
U&L Percussive Presets
banjo
steel drum
proguram
Upper Harmonic Coupler
2 2/3'
cancel
U. String Ensemble
cello
violin
L. String Ensemble
slow attack
U. Percussive Tone
long
flute 2 2/3'
flute 5 1/3'
flute 16'
U. Tab
string off 4'
U. Percussive Tone
off 2 2/3'
off 5 1/3'
flute off 2'
tuba
pipe bass I
acoustic bass
synthe bass
Upper Organ Presets
I
II
III
IV
U. St. Ensemble Vol.
loud
soft
L. St. Ensemble Vol.
Upper Volume
U. Percussive Tone Vol.
click
flute 1'
flute off 16'
ensemble bass
pipe bass II
chopper bass
vibraphone
U&L Percussive Presets
harpsi-chord
electric piano
acoustic piano
U&L Vocal Ensemble
ah/humming
bass 8'
bass 16'
Bass Harmonic Control
bright
mellow
flute 1 1/3'
string 8'
Upper Percussive Tone
off 2'
off 4'
click off
flute off 1'
clavi
glocken
jazz guitar
acoustic guitar
U&L Vocal Ensemble
Mode Selector
function
mode
U&L Presets Volume
Bass Volume
string 4'
flute 2'
A
B
C
D
E
F

NOTES:

- IC'S
  - IC1: MN15621PGA
  - IC2∼5: SVIGM53217
- TRANSISTORS
  - Q1∼4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1∼20, 22∼48, 50∼88: MA150IR
  - D89∼91, 93, 95∼103, 105∼108, 113∼147, 150∼158: SEL2210SLFM1 (Red)
  - D92, 109∼112: SEL2710KLFM1 (Yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

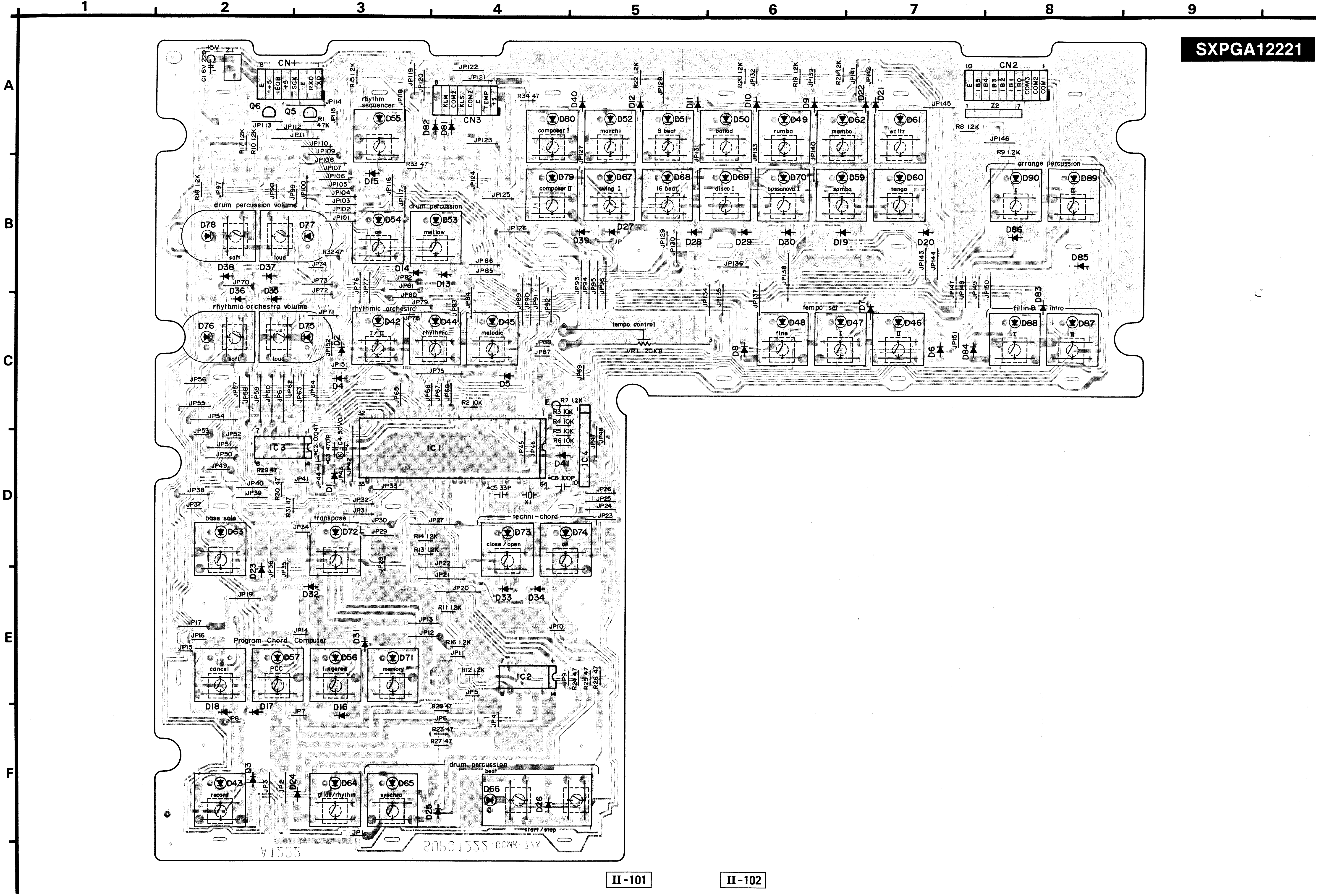
CONTROL PANEL SW. LEFT CIRCUIT DIAGRAM (CPSL)


1 2 3 4 5 6 7 8 9
A B C D E F
PKB
CN2
COM1
COM2
COM3
IB0
IB1
IB2
IB3
IB4
IB5
E
Micro Computer
IC1
IC4
+5
P10
P11
P12
P13
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
D41
Z2
VDD
VSS
C2 0.047
C1 6V220
SAS
Serial Bus
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Q5
R1 4.7K
SBI
SBO
SBT
IRQ
R2 10K
C3 470P
Noise Filter
Z1
Q6
STO
D1
RST
C4 50V0.1
C5 100P
X1
C5 33P
4.5MHz
Rhythm
Tempo Speed Voume
VR1 20KB
CN3
+5V
TEMP
E
COM2
KLS
COM2
KLM
Knee Lever
D81
D82
Ⓐ⒝: off
Ⓐ: off
Ⓑ: on
Ⓐ: on
Ⓑ: off
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
Rhy. Orchestra
1/II
record
Rhythmic Orchestra
rhythmic
melodic
Tempo Set
II
I
fine
rumba
Rhythm
ballad
8 beat
march
Drum Percussion
mellow
on
rhythm sequencer
Program
fingered
Chord Computer
cancel
samba
tango
waltz
manbo
bass solo
glide/ rhythm
Drum Percussion
synchro
start/ stop
Fill in 8 Intro
Arrange Percussion
swing I
16 beat
disco I
bossanova I
P.C.C
memory
transpose
Techni-Chord
close/ open
on
Rhy.Orchestra Volume
loud
soft
Drum Percussion Volume
loud
soft
Composer
R23 47
R24 47
R25 47
R26 47
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
R33 47
R34 47
IC2
IC3

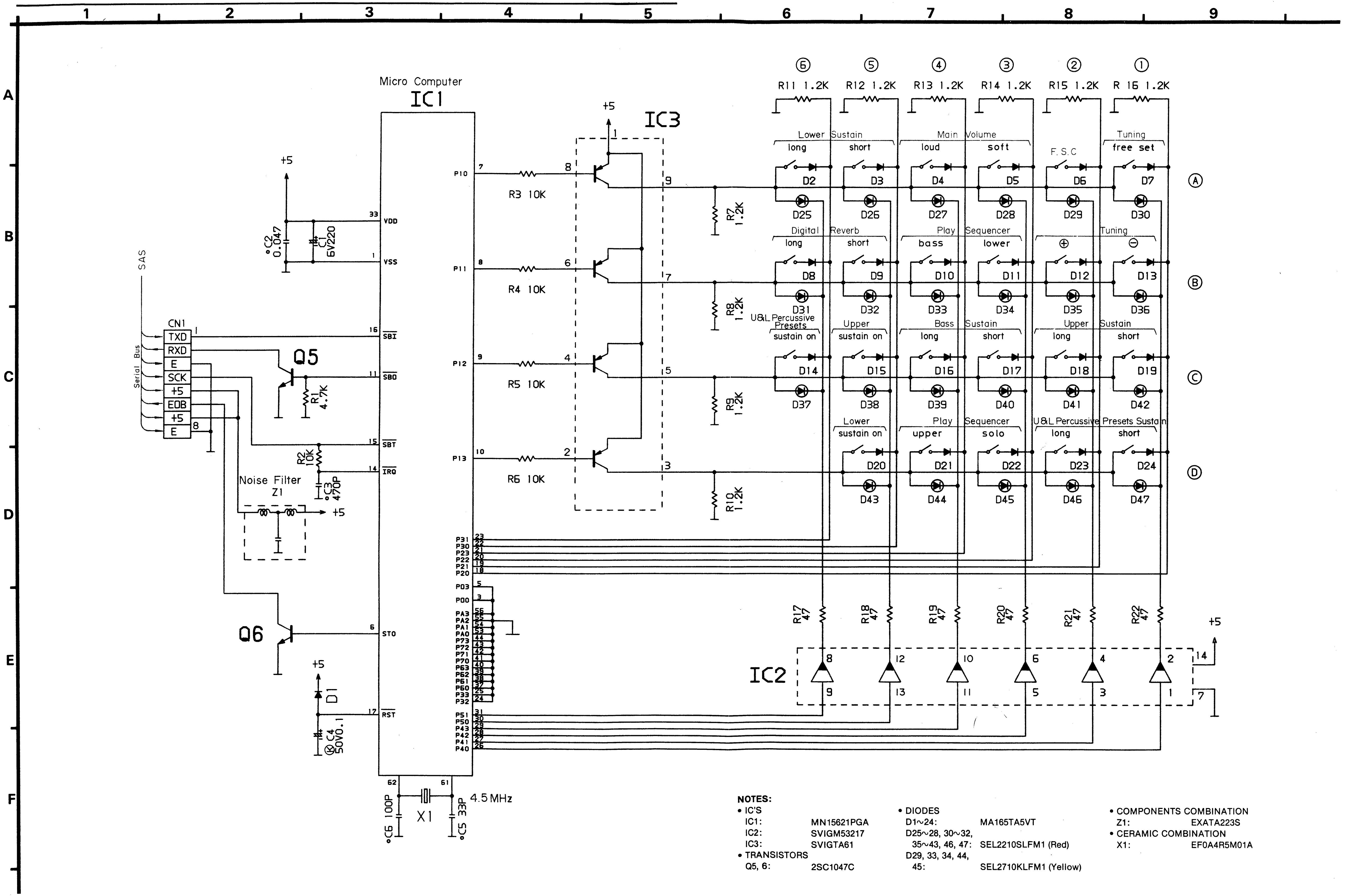
NOTES:

- IC'S
  - IC1: MN15621PGA
  - IC2, 3: SVIGM53217
  - IC4: SVIGTA61
- TRANSISTORS
  - Q5, 6: 2SC1047C
- DIODES
  - D1~41, 81~86: MA165TA5VT
  - D42, 44, 45, 48~54, 56, 59~71, 73~78, 87~90: SEL2210SLFM1 (Red)
  - D43, 46, 47, 55, 57, 72, 79, 80: SEL2710KLFM1 (Yellow)
- COMPONENTS COMBINATIONS
  - Z1: EXATA223S
  - Z2: EXBP86122MM
- CERAMIC COMBINATION
  - X1: EF0A4R5M01A

CONTROL PANEL SW. LEFT CIRCUIT BOARD (CPSL)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPGA12221
CN1
CN2
CN3
Z1
Z2
+5V
C1 6V 220
Q6
Q5
R1 47K
rhythm sequencer
D55
drum percussion volume
D78
D77
soft
loud
drum percussion
D54
on
D53
mellow
rhythmic orchestra volume
D76
D75
soft
loud
rhythmic orchestra
D42
I / II
D44
rhythmic
D45
melodic
composer I
D80
march
D52
8 beat
D51
ballad
D50
rumba
D49
mambo
D62
waltz
D61
composer II
D79
swing I
D67
16 beat
D68
disco I
D69
bossanova I
D70
samba
D59
tango
D60
arrange percussion
D90
D89
I
II
tempo control
VR1 20KB
tempo set
D48
fine
D47
D46
I
II
fill in & intro
D88
D87
I
II
IC1
IC2
IC3
IC4
X1
C5 33P
C6 100P
C2 0.047
C3 470P
C4 50V0.1
bass solo
D63
transpose
D72
techni-chord
D73
close / open
D74
on
Program Chord Computer
cancel
PCC
D57
fingered
D56
memory
D71
D43
record
D64
glide/rhythm
D65
synchro
drum percussion
beat
D66
start / stop
SUPC1222

CONTROL PANEL SW. RIGHT CIRCUIT DIAGRAM (CPSR)

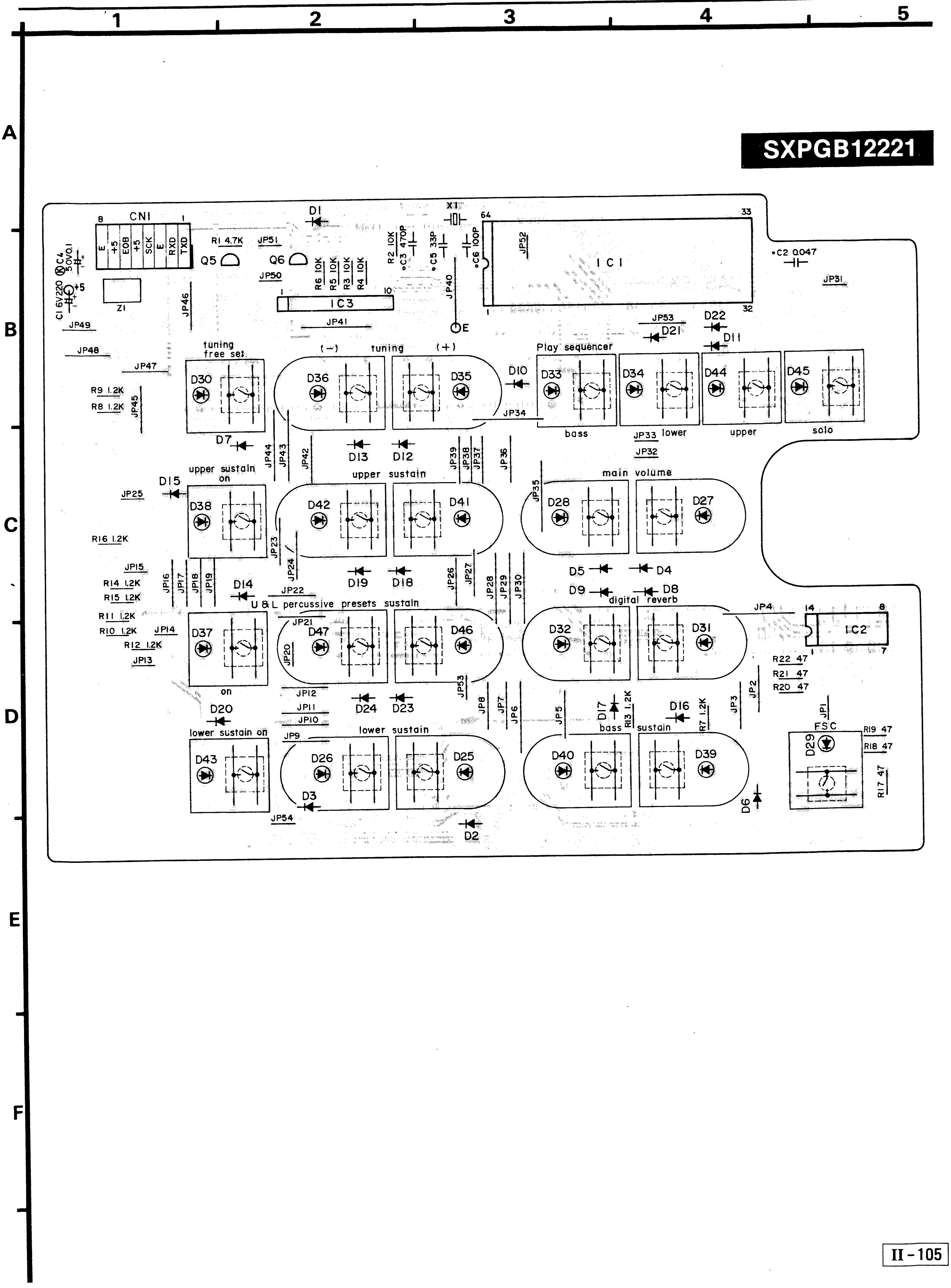

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
IC2
IC3
+5
SAS
Serial Bus
CN1
TXD
RXD
E
SCK
+5
EDB
+5
E
Q5
Q6
R1 4.7K
R2 10K
C3 470P
C2 0.047
C1 6V220
Noise Filter Z1
D1
C4 50V0.1
C6 100P
C5 33P
X1
4.5MHz
VDD
VSS
SBI
SBO
SBT
IRQ
STO
RST
P10
P11
P12
P13
P31
P30
P23
P22
P21
P20
P03
P00
PA3
PA2
PA1
PA0
P73
P72
P71
P70
P63
P62
P61
P60
P33
P32
P51
P50
P43
P42
P41
P40
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
⑥
⑤
④
③
②
①
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R 16 1.2K
Lower Sustain
long
short
Main Volume
loud
soft
F.S.C
Tuning
free set
Ⓐ
Ⓑ
Ⓒ
Ⓓ
D2
D3
D4
D5
D6
D7
D25
D26
D27
D28
D29
D30
Digital Reverb
long
short
Play Sequencer
bass
lower
Tuning
⊕
⊖
D8
D9
D10
D11
D12
D13
D31
D32
D33
D34
D35
D36
U&L Percussive Presets
sustain on
Upper
sustain on
Bass Sustain
long
short
Upper Sustain
long
short
D14
D15
D16
D17
D18
D19
D37
D38
D39
D40
D41
D42
Lower
sustain on
Play Sequencer
upper
solo
U&L Percussive Presets Sustain
long
short
D20
D21
D22
D23
D24
D43
D44
D45
D46
D47
R17 47
R18 47
R19 47
R20 47
R21 47
R22 47

NOTES:

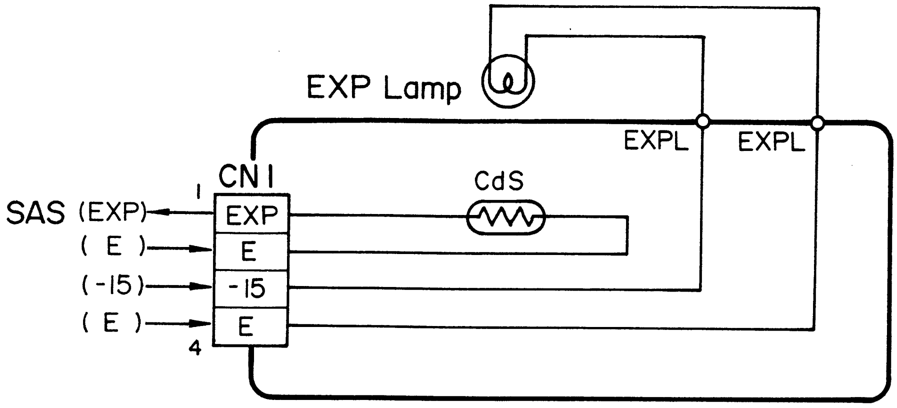
- IC'S
  - IC1: MN15621PGA
  - IC2: SVIGM53217
  - IC3: SVIGTA61
- TRANSISTORS
  - Q5, 6: 2SC1047C
- DIODES
  - D1~24: MA165TA5VT
  - D25~28, 30~32, 35~43, 46, 47: SEL2210SLFM1 (Red)
  - D29, 33, 34, 44, 45: SEL2710KLFM1 (Yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC COMBINATION
  - X1: EF0A4R5M01A

CONTROL PANEL SW. RIGHT CIRCUIT BOARD (CPSR)

SXPGB12221

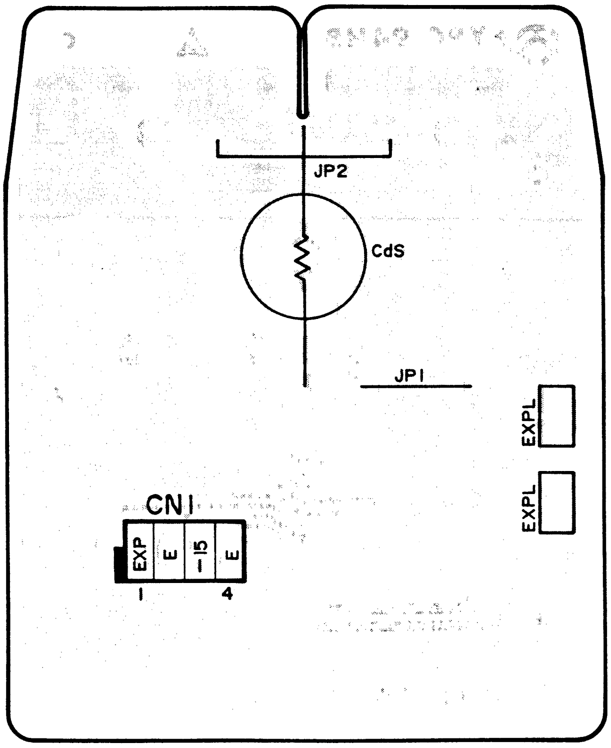

1
2
3
4
5
A
B
C
D
E
F
CN1
8
1
E
+5
EOB
+5
SCK
E
RXD
TXD
C4 50V0.1
C1 6V220
+5
Z1
R1 4.7K
JP51
Q5
Q6
JP50
JP46
JP49
JP48
JP47
D1
R2 10K
C3 470P
X1
C5 33P
C6 100P
R6 10K
R5 10K
R3 10K
R4 10K
IC3
1
10
JP41
JP40
E
64
33
JP52
IC1
1
32
C2 0.047
JP31
JP53
D22
D21
D11
tuning free set
D30
(−) tuning (+)
D36
D35
D10
Play sequencer
D33
D34
D44
D45
JP34
bass
JP33
lower
upper
solo
JP32
R9 1.2K
R8 1.2K
JP45
D7
JP44
JP43
JP42
D13
D12
JP39
JP38
JP37
JP36
upper sustain on
D15
JP25
D38
upper sustain
D42
D41
JP35
main volume
D28
D27
R16 1.2K
JP23
JP24
D19
D18
JP26
JP27
D5
D4
JP15
R14 1.2K
R15 1.2K
JP16
JP17
JP18
JP19
D14
JP22
U & L percussive presets sustain
JP28
JP29
JP30
D9
D8
digital reverb
JP4
14
8
IC2
1
7
R11 1.2K
R10 1.2K
JP14
R12 1.2K
JP13
D37
JP21
D47
JP20
D46
D32
D31
R22 47
R21 47
R20 47
on
JP12
JP11
JP10
D24
D23
JP53
JP8
JP7
JP6
JP5
D17
R13 1.2K
D16
R7 1.2K
JP3
JP2
JP1
D20
lower sustain on
JP9
lower sustain
bass
sustain
FSC
R19 47
R18 47
D43
D26
D25
D40
D39
D29
R17 47
D3
JP54
D2
D6

EXPRESSION CIRCUIT DIAGRAM (EXP)

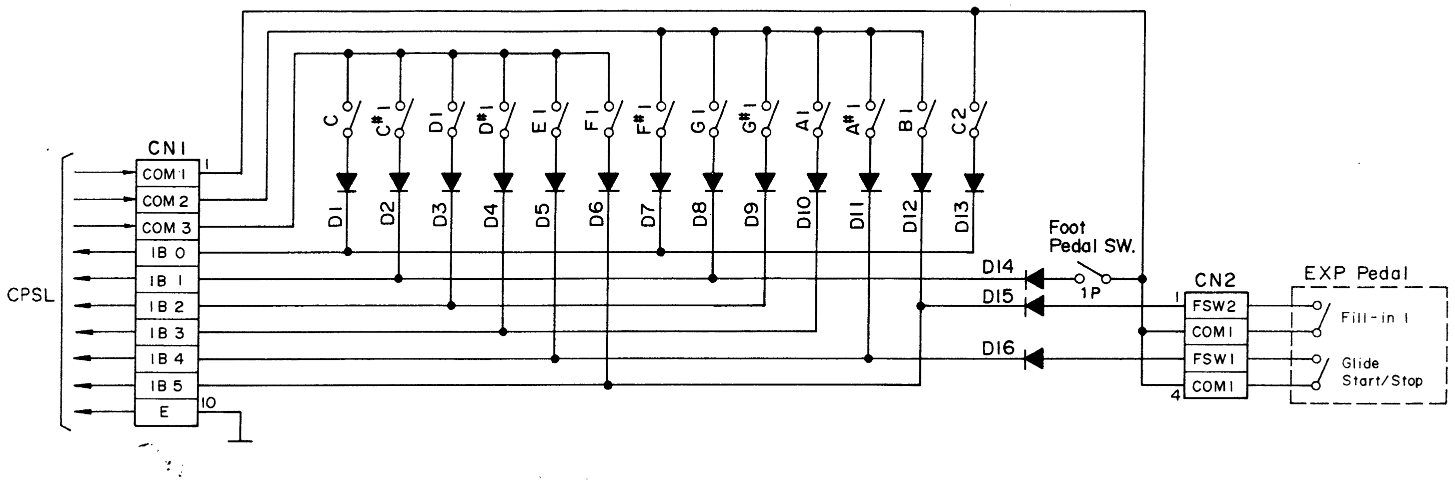

EXP Lamp
EXPL
EXPL
CN1
1
4
CdS
SAS (EXP)
(E)
(-15)
(E)
EXP
E
-15
E

EXPRESSION CIRCUIT BOARD (EXP)

SXPG103211

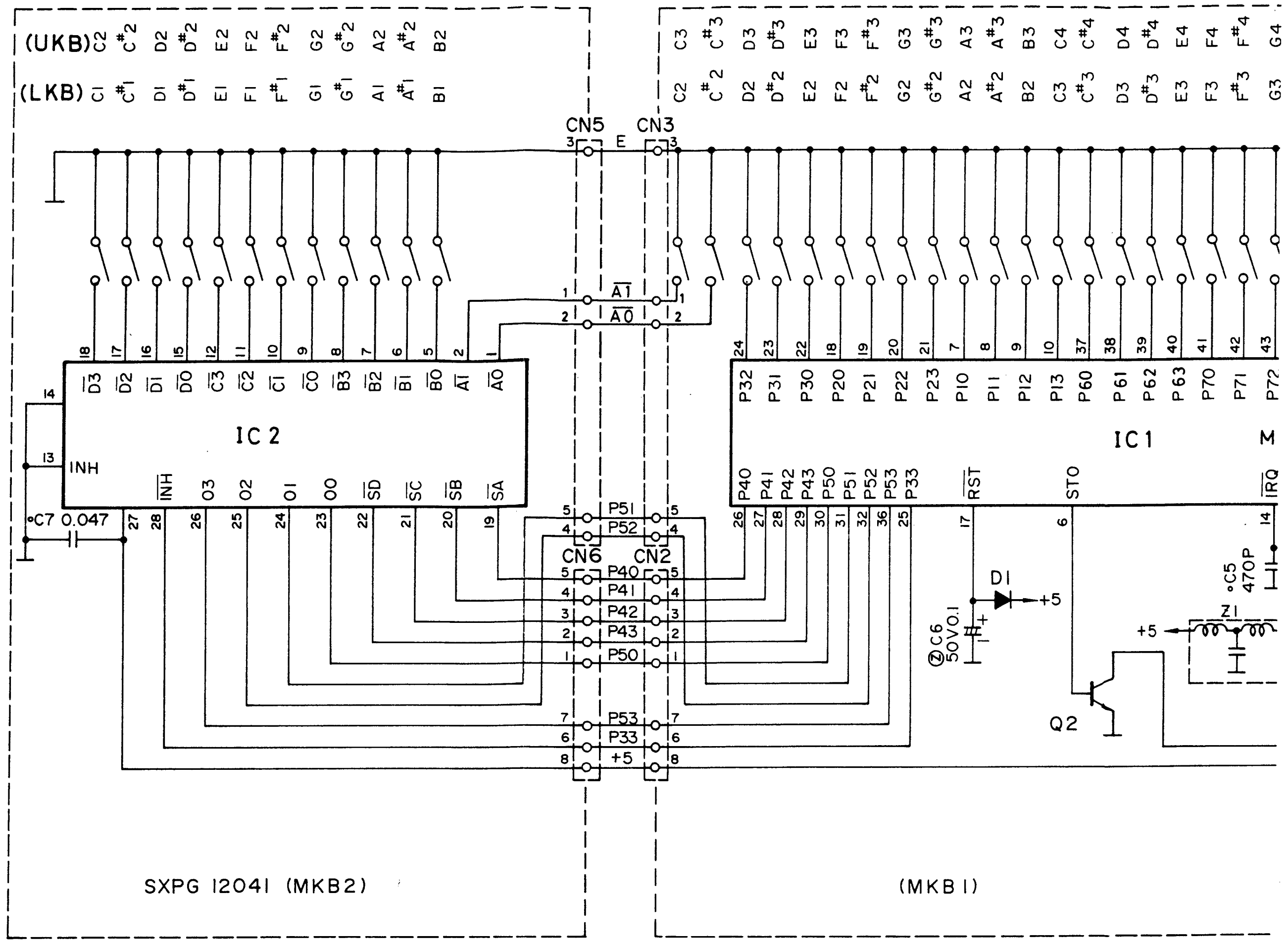

JP2
CdS
JP1
EXPL
EXPL
CN1
EXP
E
-15
E
1
4

PEDAL KEYBOARD CIRCUIT DIAGRAM (PKB)


CN1
COM 1
COM 2
COM 3
IB 0
IB 1
IB 2
IB 3
IB 4
IB 5
E
CPSL
C
C#1
D1
D#1
E1
F1
F#1
G1
G#1
A1
A#1
B1
C2
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
Foot Pedal SW.
1P
CN2
FSW2
COM1
FSW1
COM1
EXP Pedal
Fill-in 1
Glide Start/Stop

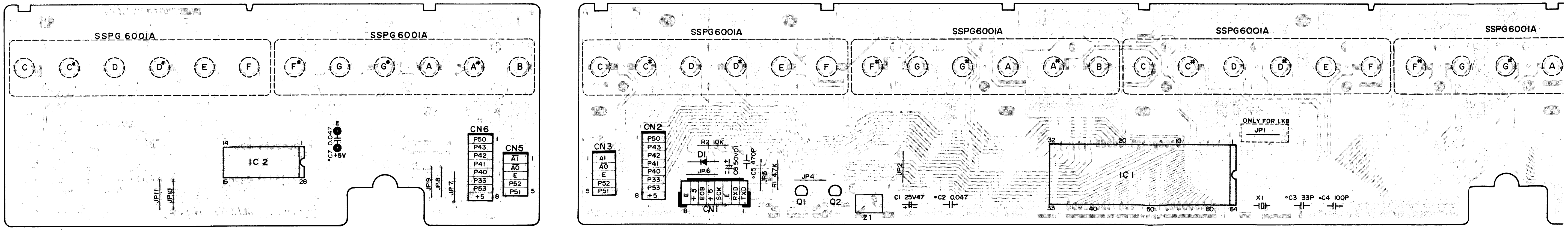
NOTE:
- DIODES
  D1~16: MA150IR

MANUAL KEYBOARD CIRCUIT DIAGRAM (MKB1) (MKB2)


(UKB)
(LKB)
CN5
CN3
E
A1
A0
IC 2
INH
IC 1
P51
P52
CN6
CN2
P40
P41
P42
P43
P50
P53
P33
+5
C7 0.047
RST
STO
D1
+5
C6 50V0.1
C5 470P
Z1
Q2
SXPG 12041 (MKB2)
(MKB 1)

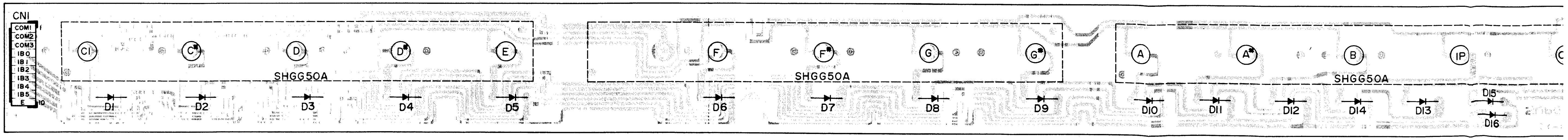
MANUAL KEYBOARD CIRCUIT BOARD (MKB1) (MKB2)

MKB2 **SXPG12041** **MKB1**

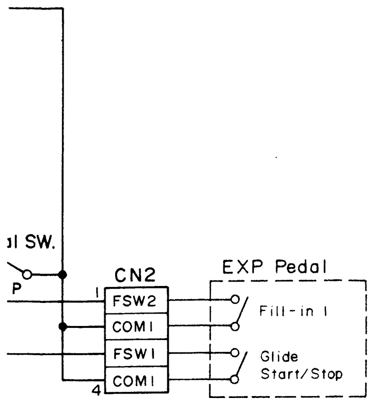

SSPG6001A
C
C#
D
D#
E
F
F#
G
G#
A
A#
B
IC 2
C7 0.047
+5V
CN6
CN5
CN3
CN2
CN1
JP1
JP2
JP4
JP6
R1 4.7K
R2 10K
D1
Q1
Q2
Z1
C1 25V47
C2 0.047
C3 33P
C4 100P
C5 470P
C6 50V0.1
X1
IC 1
ONLY FOR LKB

PEDAL KEYBOARD CIRCUIT BOARD (PKB)

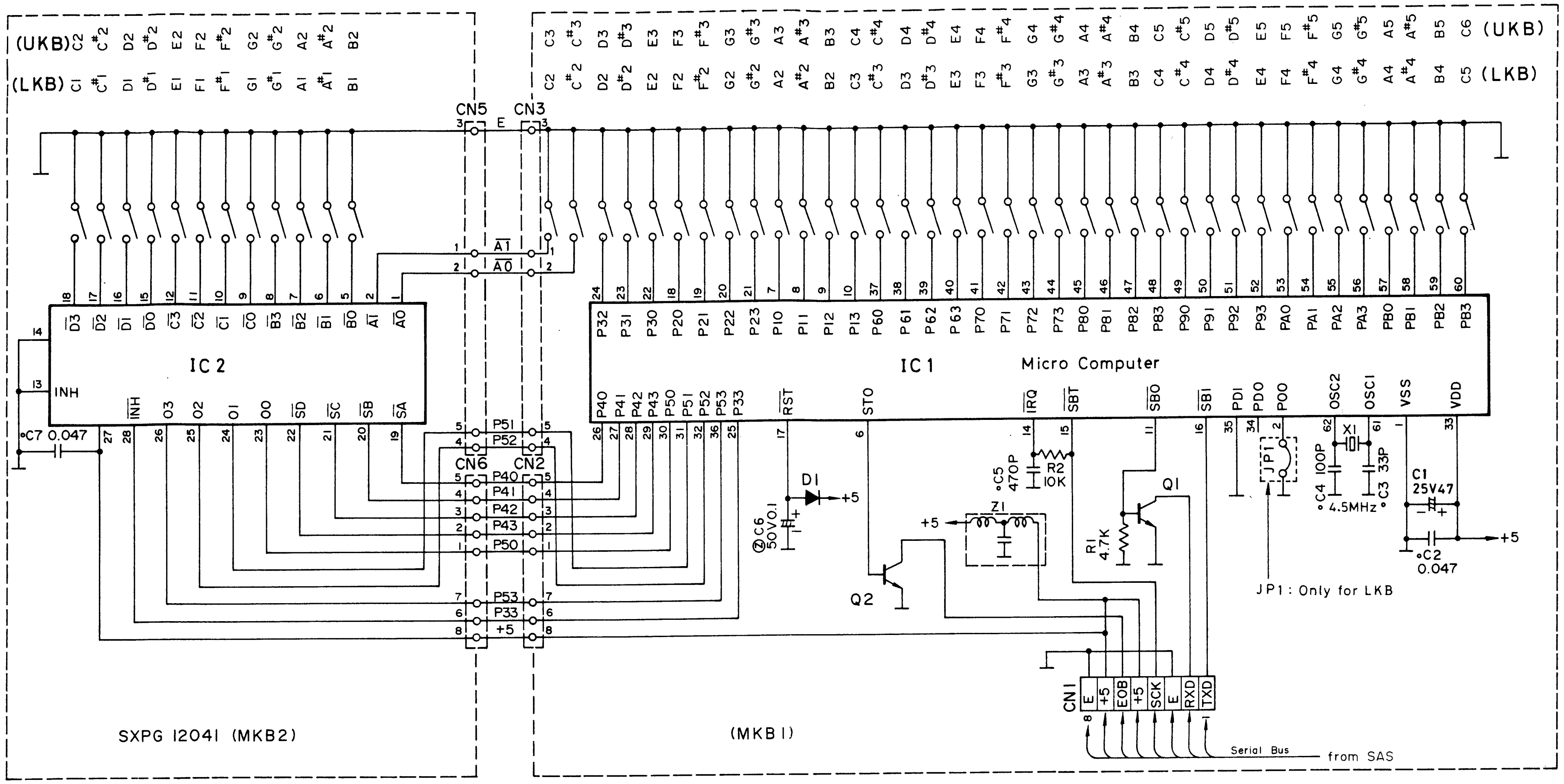
SXP


CN1
COM1
COM2
COM3
IB0
IB1
IB2
IB3
IB4
IB5
E
C1
C#
D
D#
E
F
F#
G
G#
A
A#
B
1P
SHGG50A
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16

MANUAL KEYBOARD CIRCUIT DIAGRAM (MKB1) (MKB2)


l SW.
P
CN2
FSW2
COMI
FSWI
COMI
EXP Pedal
Fill-in I
Glide Start/Stop

NOTE:
- DIODES
  D1~16: MA150IR


(UKB)
(LKB)
CN5
CN3
CN6
CN2
E
IC 2
INH
IC 1
Micro Computer
•C7 0.047
P51
P52
P40
P41
P42
P43
P50
P53
P33
+5
D1
+5
ⓩC6 50V0.1
•C5 470P
R2 10K
Z1
+5
R1 4.7K
Q1
Q2
JP1
X1
•C4 100P
•C3 33P
4.5MHz
C1 25V47
•C2 0.047
JP1: Only for LKB
CN1
E
+5
EOB
+5
SCK
E
RXD
TXD
Serial Bus
from SAS
SXPG 12041 (MKB2)
(MKB 1)

MKB1

NOTES:
- IC
  IC1: MN15621PGA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATION
  Z1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A

MKB2

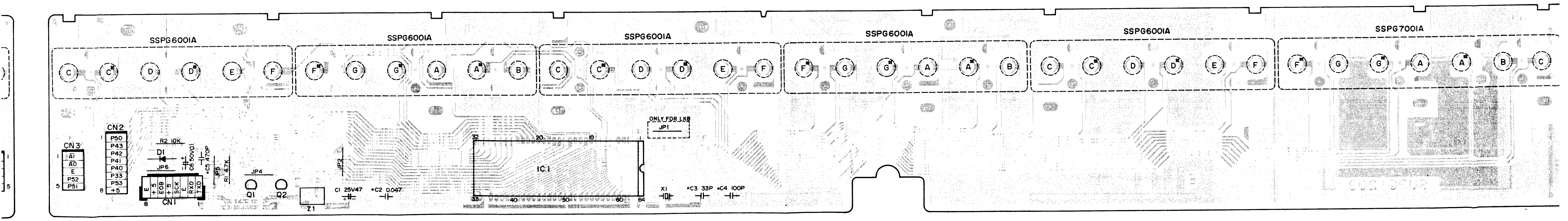
NOTE:
- IC
  IC1: SVIGLC7800

1) (MKB2)

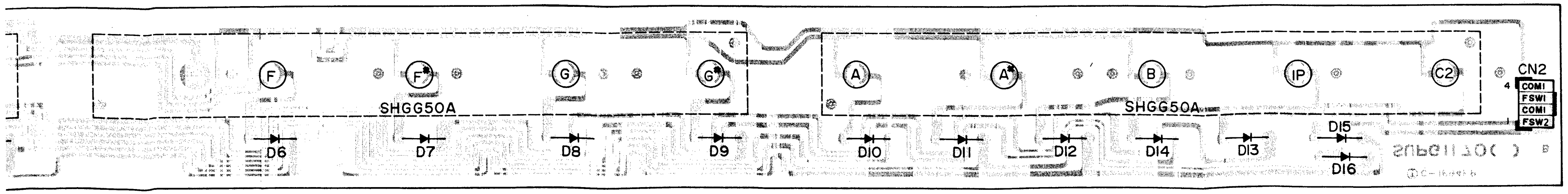
MKB1

* Upper Keyboard **SXPG12032**

* Lower Keyboard **SXPG12031**


SSPG6001A
SSPG6001A
SSPG6001A
SSPG6001A
SSPG6001A
SSPG7001A
CN2
CN3
CN1
ONLY FOR LKB
JP1
IC1
Q1
Q2
Z1
X1

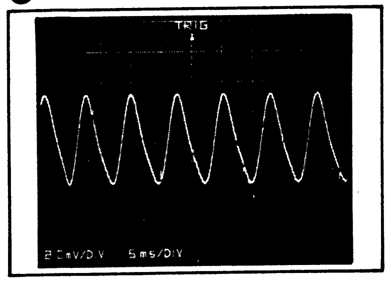
SXPG11702


SHGG50A
SHGG50A
CN2
COMI
FSWI
COMI
FSW2
D6
D7
D8
D9
D10
D11
D12
D14
D13
D15
D16

POWER AMPLIFIER CIRCUIT BOARD (PA)

SXPG12252

①



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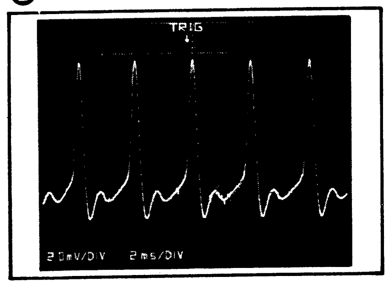

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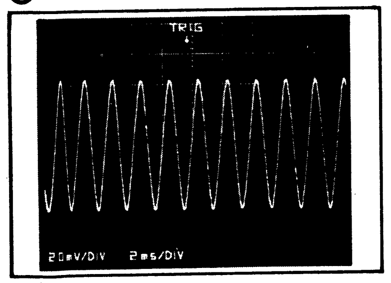
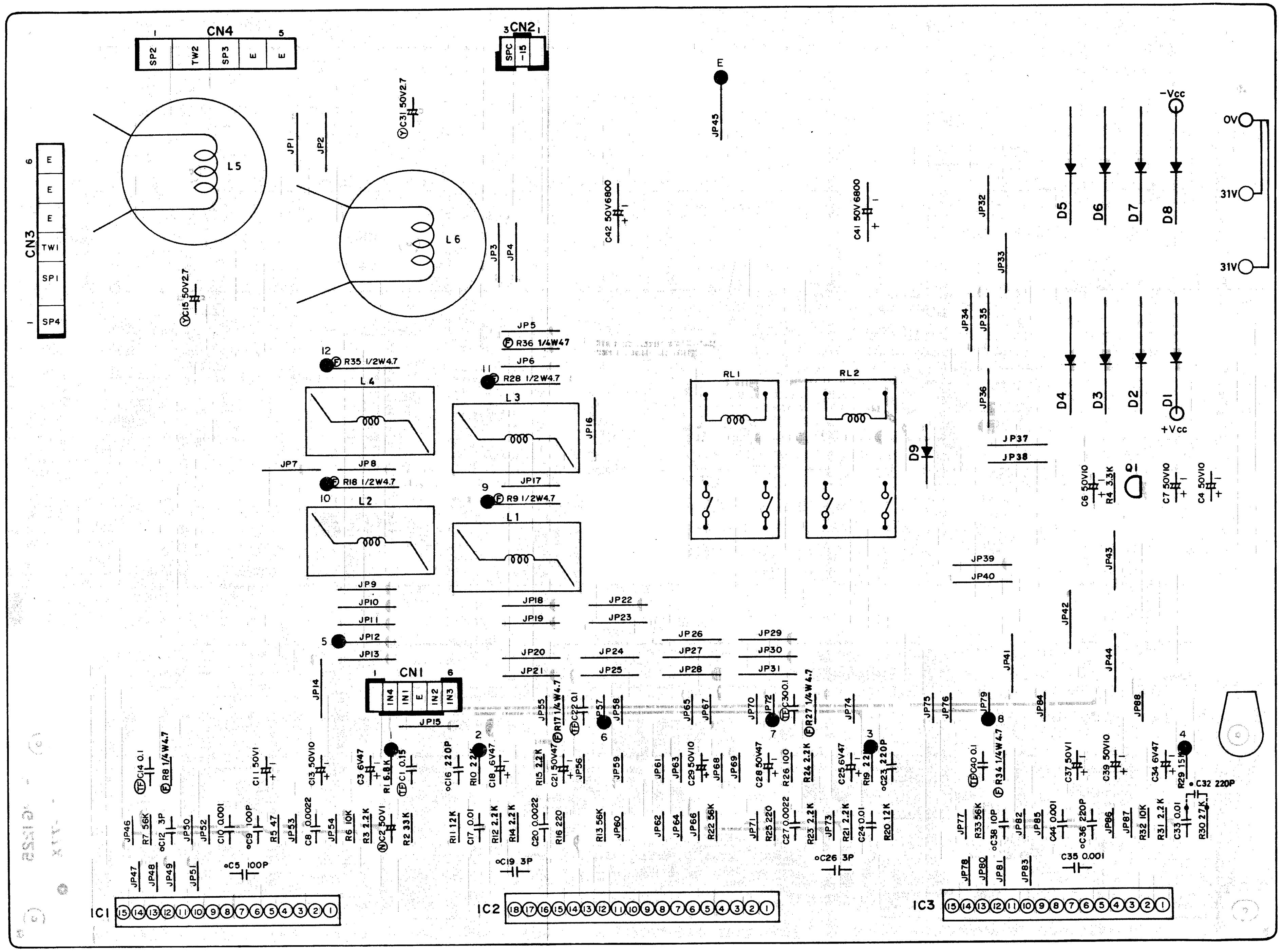
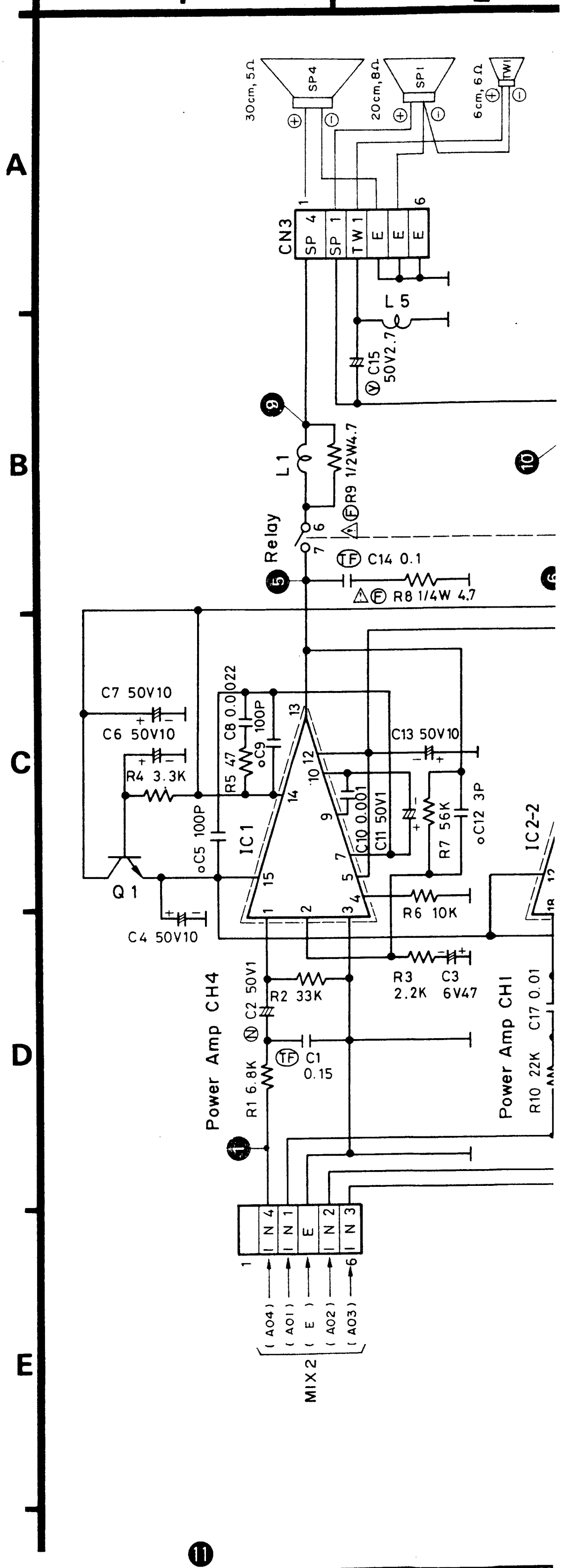
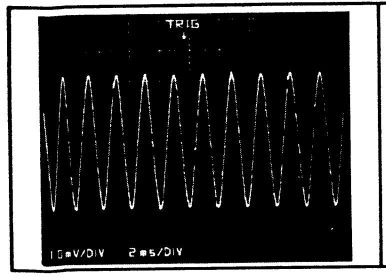



CN4
SP2
TW2
SP3
E
E
CN2
SPC
-15
CN3
E
E
E
TW1
SP1
SP4
L5
L6
L4
L3
L2
L1
RL1
RL2
D1
D2
D3
D4
D5
D6
D7
D8
D9
Q1
CN1
IN4
IN1
E
IN2
IN3
IC1
IC2
IC3
-Vcc
+Vcc
0V
31V
31V
E
R35 1/2W4.7
R36 1/4W47
R28 1/2W4.7
R18 1/2W4.7
R9 1/2W4.7
C31 50V2.7
C15 50V2.7
C42 50V6800
C41 50V6800
C32 220P

POWER AMPLIFIER C


CN3
SP4
SP1
TW1
E
E
E
30cm, 5Ω
20cm, 8Ω
6cm, 6Ω
L5
C15 50V2.7
L1
R9 1/2W4.7
Relay
C14 0.1
R8 1/4W 4.7
C7 50V10
C6 50V10
C8 0.0022
C9 100P
R4 3.3K
R5 47
C13 50V10
C10 0.001
C11 50V1
R7 56K
C12 3P
C5 100P
IC1
Q1
C4 50V10
R6 10K
R3 2.2K
C3 6V47
R2 33K
C2 50V1
C1 0.15
R1 6.8K
Power Amp CH4
IN4
IN1
E
IN2
IN3
MIX2
IC2-2
Power Amp CH1
R10 22K
C17 0.01

④



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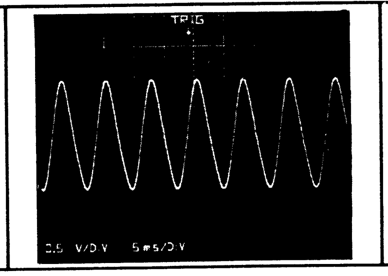

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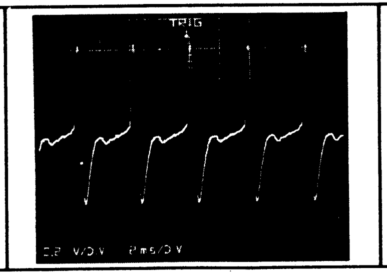

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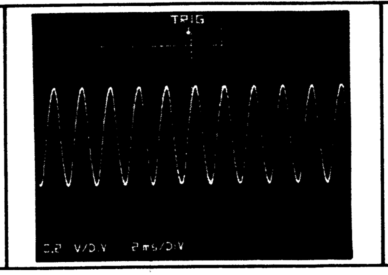

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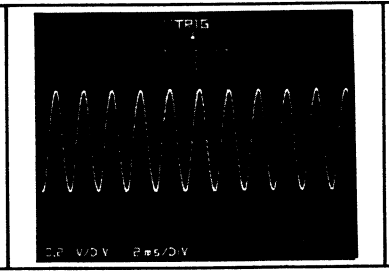

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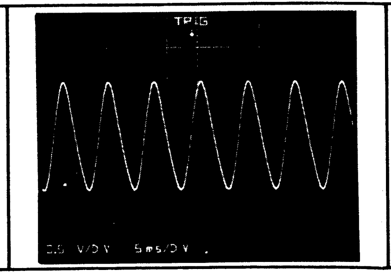

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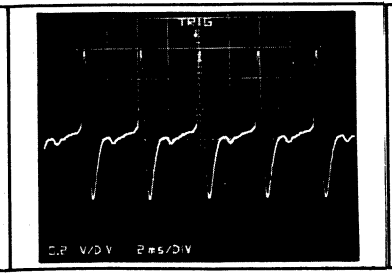

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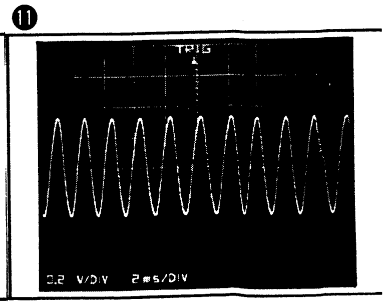
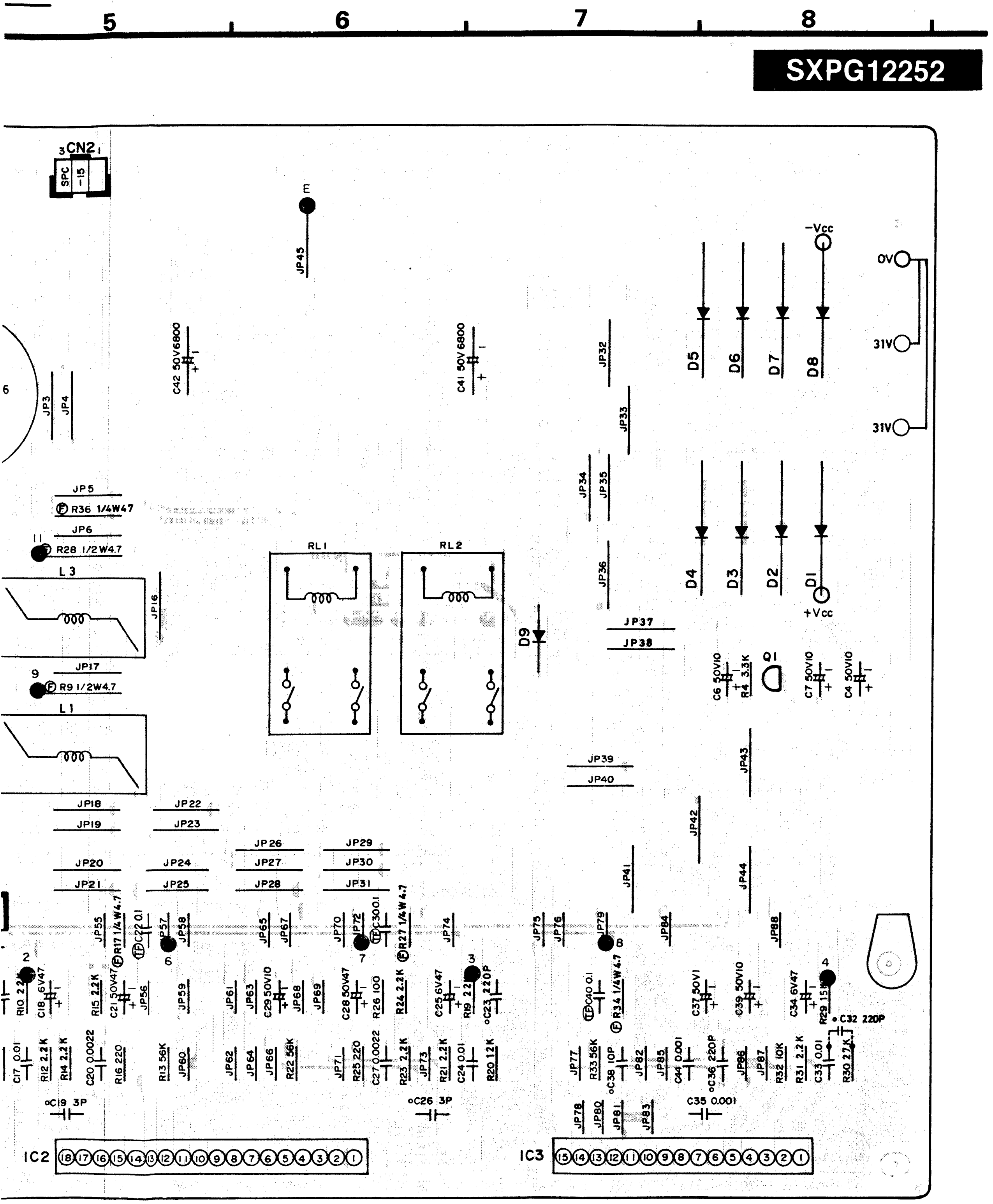
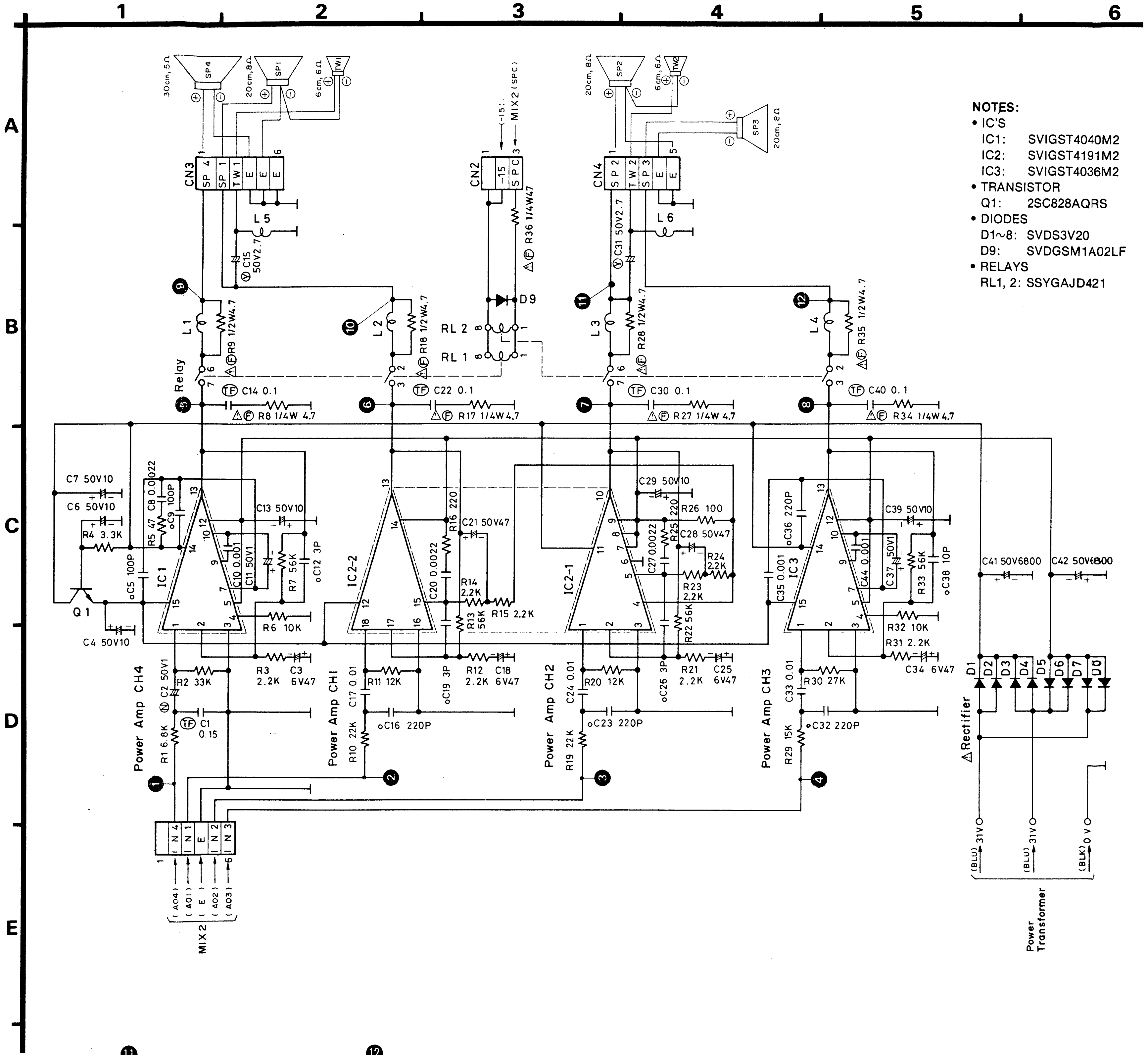


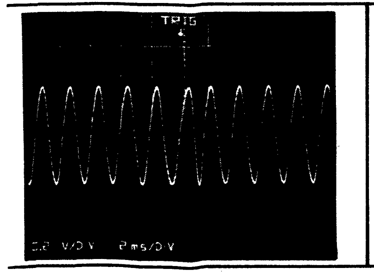
POWER AMPLIFIER CIRCUIT DIAGRAM (PA)

SXPG12252


5
6
7
8
CN2
SPC
-15
E
JP43
C42 50V6800
C41 50V6800
JP32
JP33
D5
D6
D7
D8
-Vcc
0V
31V
31V
JP3
JP4
JP5
R36 1/4W47
JP6
11
R28 1/2W4.7
L3
JP16
RL1
RL2
JP34
JP35
JP36
D4
D3
D2
D1
+Vcc
D9
JP37
JP38
C6 50V10
R4 3.3K
Q1
C7 50V10
C4 50V10
9
R9 1/2W4.7
JP17
L1
JP39
JP40
JP43
JP42
JP18
JP19
JP22
JP23
JP26
JP27
JP29
JP30
JP20
JP21
JP24
JP25
JP28
JP31
JP41
JP44
IC2
IC3


1
2
3
4
5
6
A
B
C
D
E
SP4 30cm,5Ω
SP1 20cm,8Ω
TW1 6cm,6Ω
SP2 20cm,8Ω
TW2 6cm,6Ω
SP3 20cm,8Ω
CN3
CN2
CN4
(-15)
MIX2(SPC)
L5
L6
C15 50V2.7
R36 1/4W47
C31 50V2.7
D9
RL2
RL1
L1
R9 1/2W4.7
L2
R18 1/2W4.7
L3
R28 1/2W4.7
L4
R35 1/2W4.7
Relay
C14 0.1
R8 1/4W 4.7
C22 0.1
R17 1/4W 4.7
C30 0.1
R27 1/4W 4.7
C40 0.1
R34 1/4W 4.7
C7 50V10
C6 50V10
R4 3.3K
Q1
C4 50V10
IC1
IC2-2
IC2-1
IC3
Power Amp CH4
Power Amp CH1
Power Amp CH2
Power Amp CH3
C41 50V6800
C42 50V6800
D1 D2 D3 D4 D5 D6 D7 D8
Rectifier
31V (BLU)
31V (BLU)
0V (BLK)
Power Transformer
MIX2
(AO4) (AO1) (E) (AO2) (AO3)

NOTES:
- IC'S
  - IC1: SVIGST4040M2
  - IC2: SVIGST4191M2
  - IC3: SVIGST4036M2
- TRANSISTOR
  - Q1: 2SC828AQRS
- DIODES
  - D1~8: SVDS3V20
  - D9: SVDGSM1A02LF
- RELAYS
  - RL1, 2: SSYGAJD421

❼


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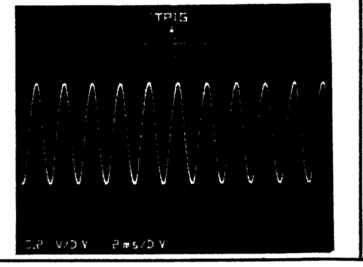

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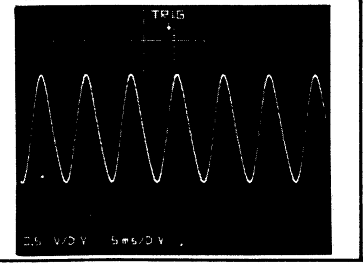

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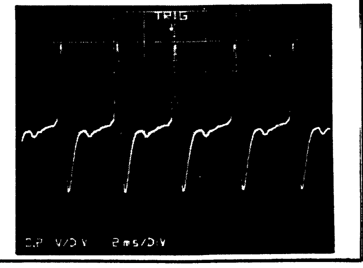

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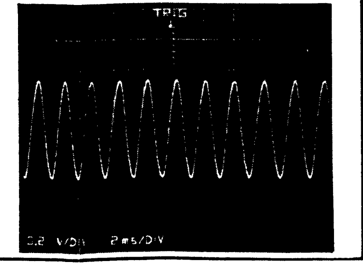

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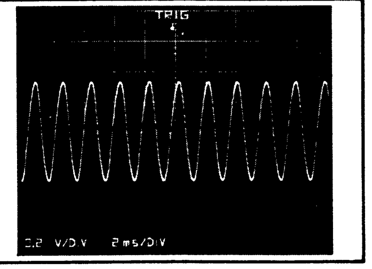
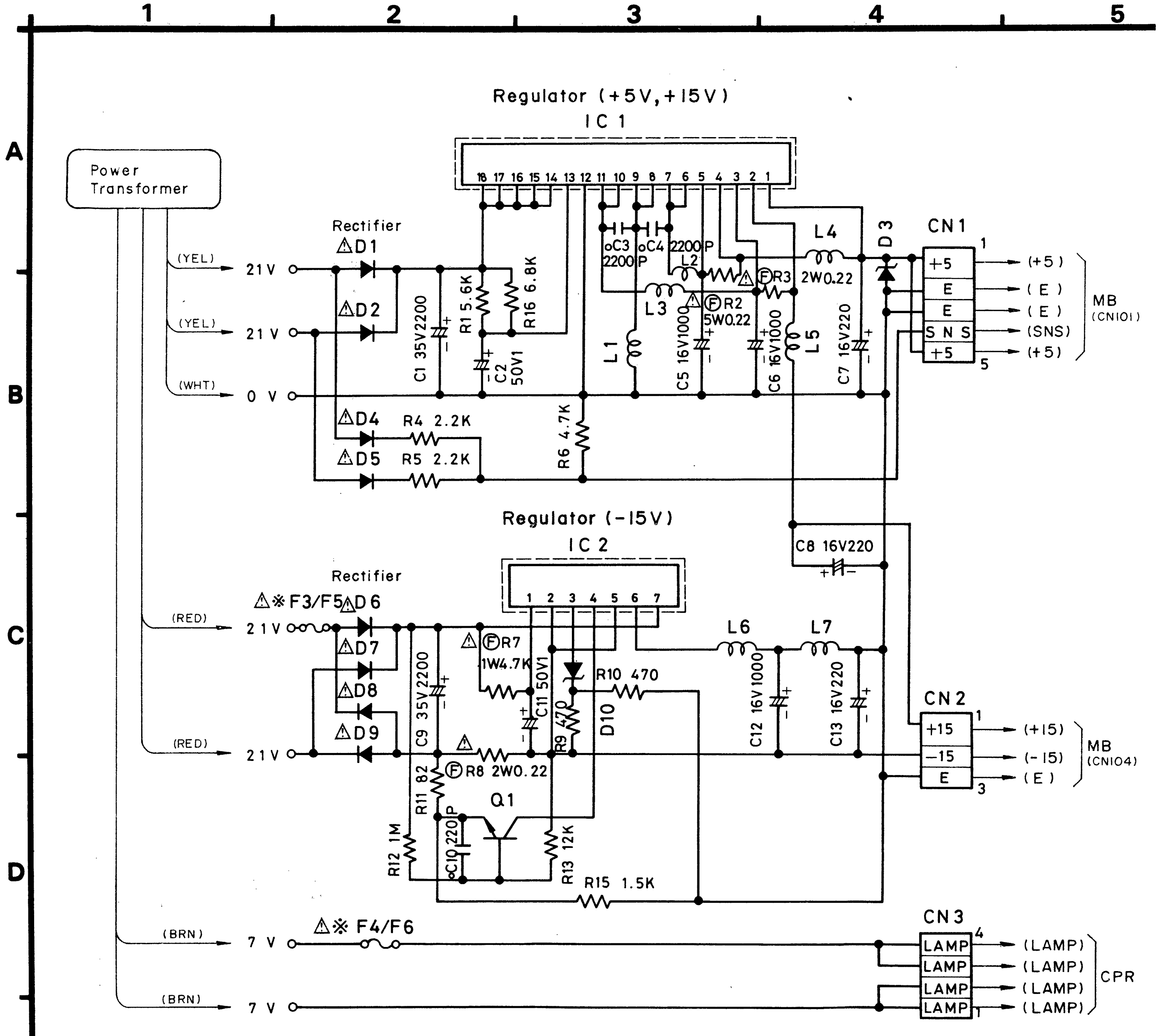


■ Measuring Conditions

1. Check Point ❶, ❺, ❾
   - Bass..................Bass 8′
   - Pedal Key...........C2
   - Bass Vol, Main Vol, Exp.....max
2. Check Point ❷, ❻, ❿
   - U. Orchestral Presets.....Trumpet
   - Harmonic Control...Center
   - Upper Key................C4
   - OPS Vol, Main Vol, Exp.....max
3. Check Point ❸, ❼, ⓫
   - Upper Tab..........Flute 8′
   - Upper Key..........C4
   - Upper Vol, Main Vol, Exp....max
4. Check Point ❹, ❽, ⓬
   - Upper Tab................Flute 8′
   - Celeste.............Upper Tab ON
   - Upper Key................C4
   - Upper Vol, Main Vol, Exp.....max

POWER SUPPLY CIRCUIT DIAGRAM (PS)



1
2
3
4
5
A
B
C
D
Regulator (+5V,+15V)
IC 1
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Power Transformer
Rectifier
⚠D1
⚠D2
⚠D4
⚠D5
(YEL)
(YEL)
(WHT)
21 V
21 V
0 V
C1 35V2200
R1 5.6K
R16 6.8K
C2 50V1
R4 2.2K
R5 2.2K
R6 4.7K
C3 2200P
C4 2200P
L1
L2
L3
⚠ⒻR2 5W0.22
⚠ⒻR3 2W0.22
C5 16V1000
C6 16V1000
L4
L5
C7 16V220
D3
CN1
+5
E
E
SNS
+5
(+5)
(E)
(E)
(SNS)
(+5)
MB (CN101)
Regulator (-15V)
IC 2
1 2 3 4 5 6 7
Rectifier
⚠※F3/F5⚠D6
⚠D7
⚠D8
⚠D9
(RED)
(RED)
21 V
21 V
C9 35V2200
⚠ⒻR7 1W4.7K
C11 50V1
R9 470
D10
R10 470
⚠ⒻR8 2W0.22
R11 82
R12 1M
C10 220P
Q1
R13 12K
R15 1.5K
C8 16V220
L6
L7
C12 16V1000
C13 16V220
CN2
+15
−15
E
(+15)
(−15)
(E)
MB (CN104)
(BRN)
(BRN)
7 V
7 V
⚠※F4/F6
CN3
LAMP
LAMP
LAMP
LAMP
(LAMP)
(LAMP)
(LAMP)
(LAMP)
CPR

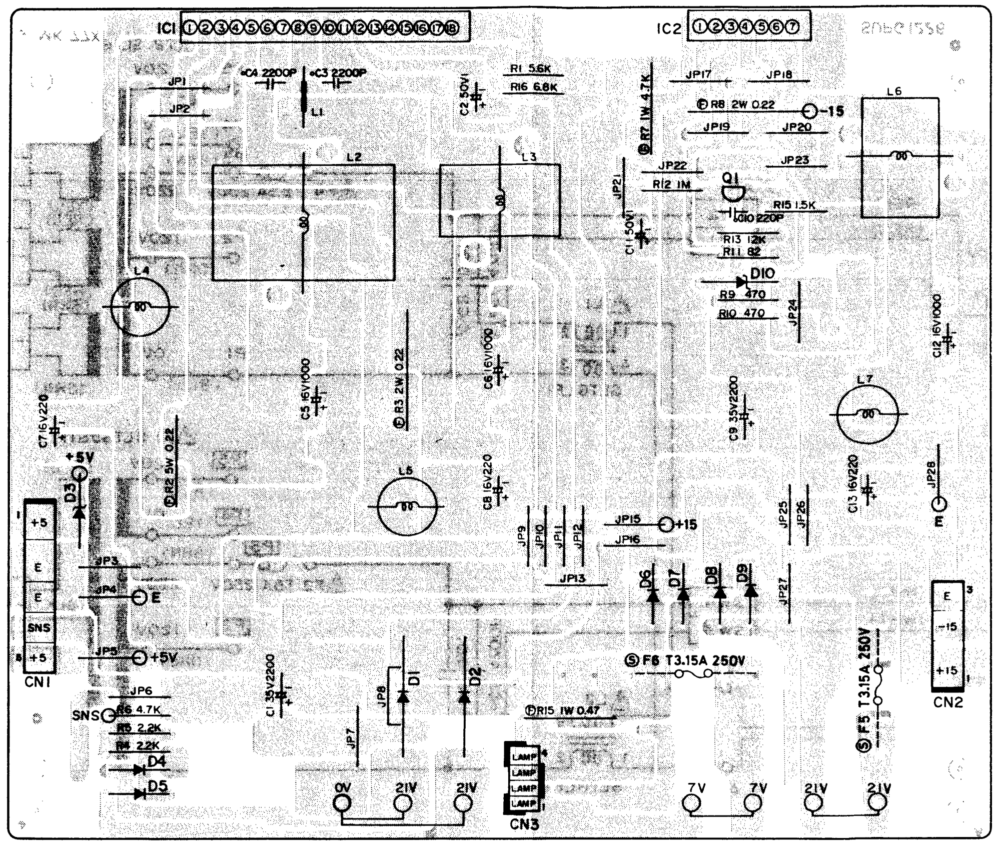
* FUSE

	SXPG12264	SXPG12266
F3		3A 125V (UL)
F4		3A 125V (UL)
F5	T3.15A 250V	
F6	T3.15A 250V	

NOTES:
- IC'S
  - IC1: SVIGSTK7562J
  - IC2: SVIGSTK770
- TRANSISTOR
  - Q1: 2SC1328ST
- DIODES
  - D1, 2: 2VDS3V20
  - D3, 10: MA1068LF
  - D4~9: SVDGSM1A02LF

POWER SUPPLY CIRCUIT BOARD (PS)

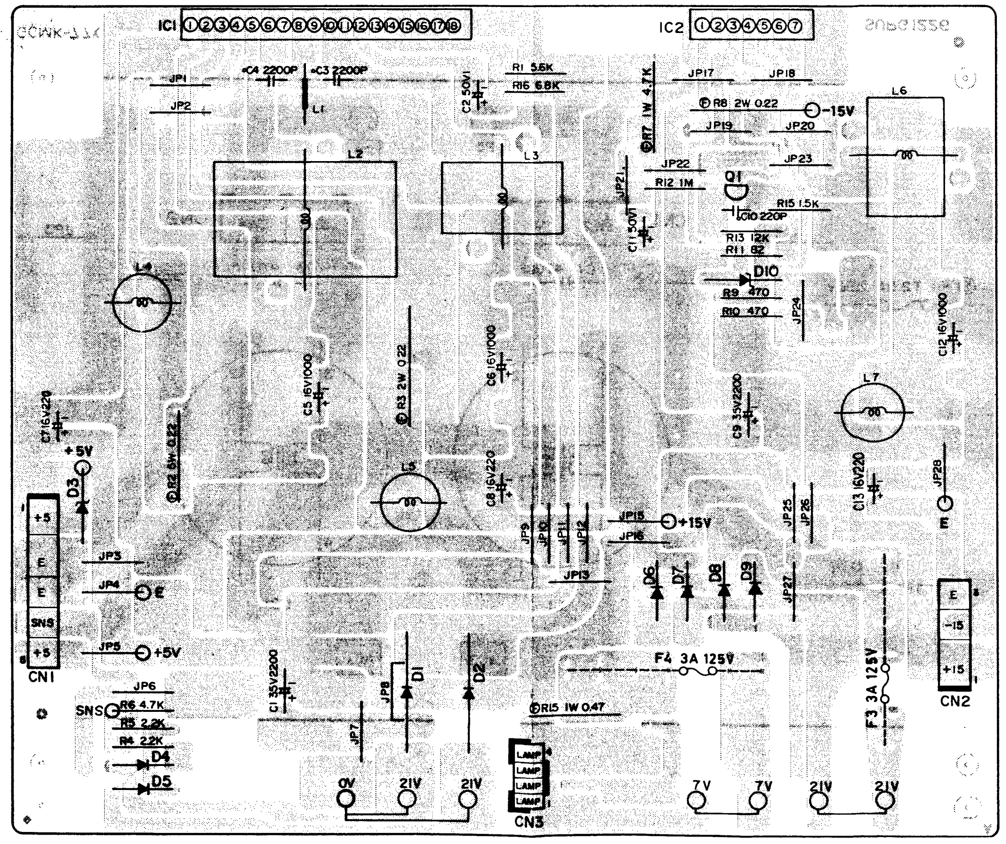
SXPG12264



IC1
IC2
CN1
CN2
CN3
+5V
+15
−15
SNS
E
F6 T3.15A 250V
F5 T3.15A 250V
0V
21V
7V

■ Products for [MC], [XT] only.

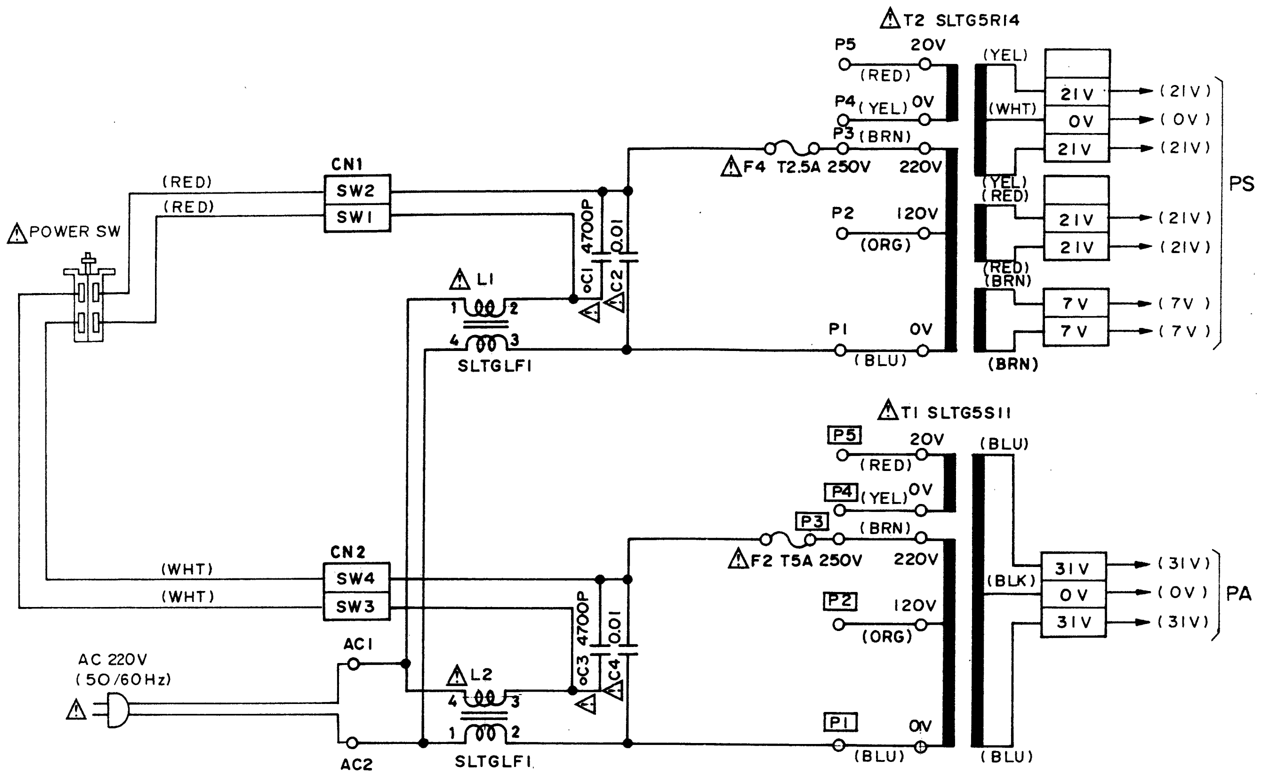
SXPG12266



IC1
IC2
CN1
CN2
CN3
+5V
+15V
−15V
SNS
E
F4 3A 125V
F3 3A 125V
0V
21V
7V

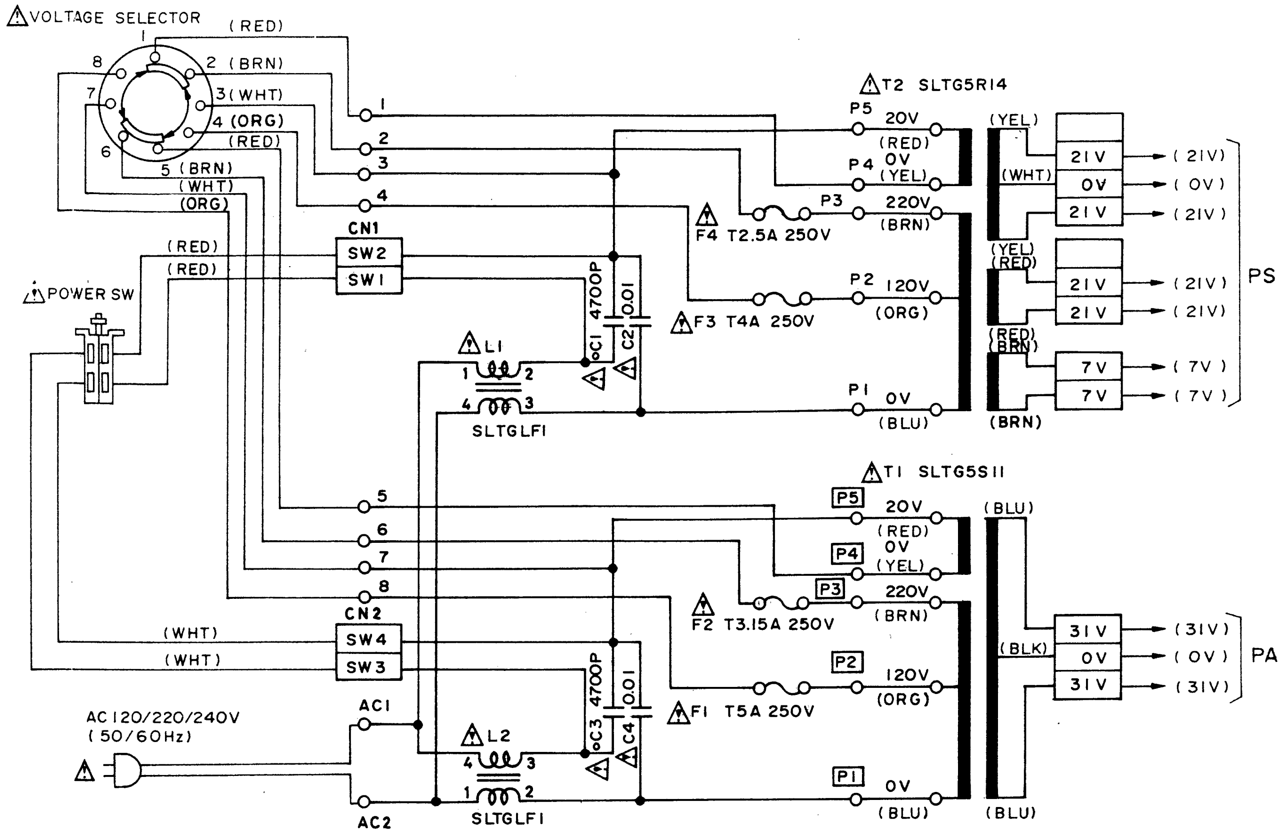
AC POWER SUPPLY CIRCUIT (ACP)

■ **Products for Europe only.**



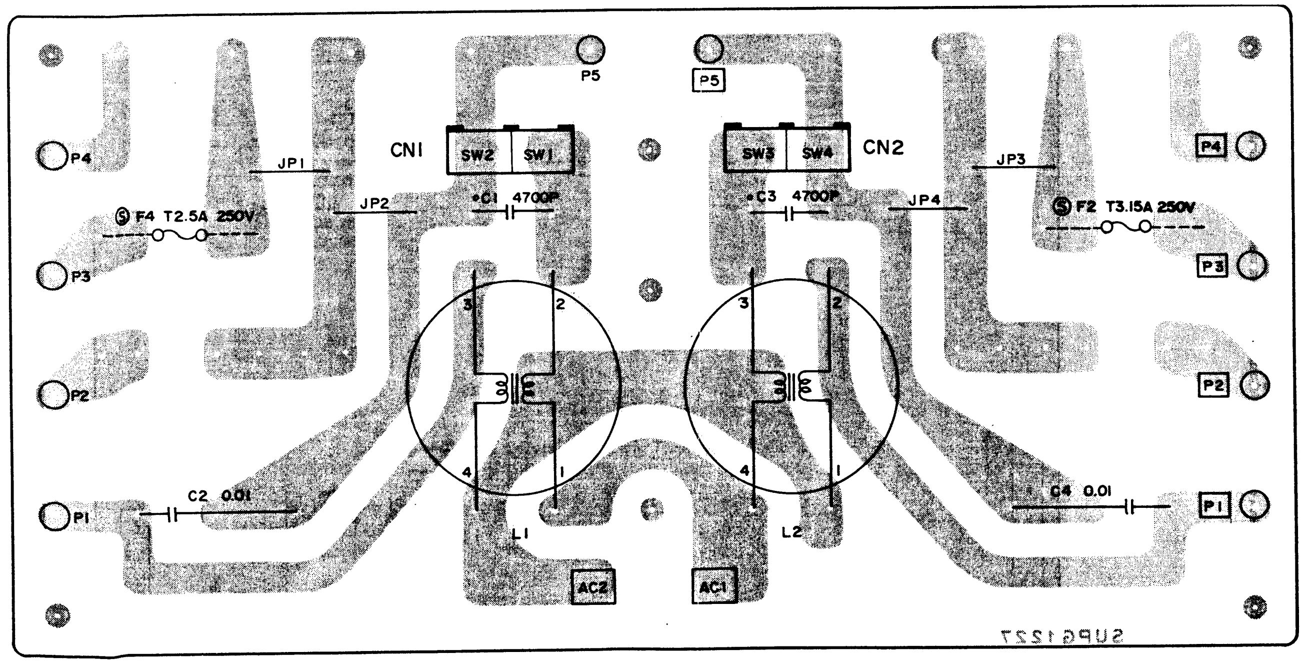
T2 SLTG5R14
P5 20V
(RED)
P4 (YEL) 0V
P3 (BRN)
F4 T2.5A 250V
220V
P2 120V
(ORG)
P1 0V
(BLU)
(YEL)
(WHT)
21V
0V
21V
(21V)
(0V)
(21V)
(YEL)
(RED)
21V
21V
(21V)
(21V)
(RED)
(BRN)
7V
7V
(7V)
(7V)
(BRN)
PS
CN1
SW2
SW1
(RED)
(RED)
POWER SW
L1
SLTGLF1
C1 4700P
C2 0.01
T1 SLTG5S11
P5 20V
(RED)
P4 (YEL) 0V
P3 (BRN)
F2 T5A 250V
220V
P2 120V
(ORG)
P1 0V
(BLU)
(BLU)
(BLK)
31V
0V
31V
(31V)
(0V)
(31V)
PA
CN2
SW4
SW3
(WHT)
(WHT)
AC1
AC2
AC 220V
(50/60Hz)
L2
SLTGLF1
C3 4700P
C4 0.01
(BLU)

■ **Products for [EK], [XL], [XR], [XS], [X], [XX] and [XV] only.**



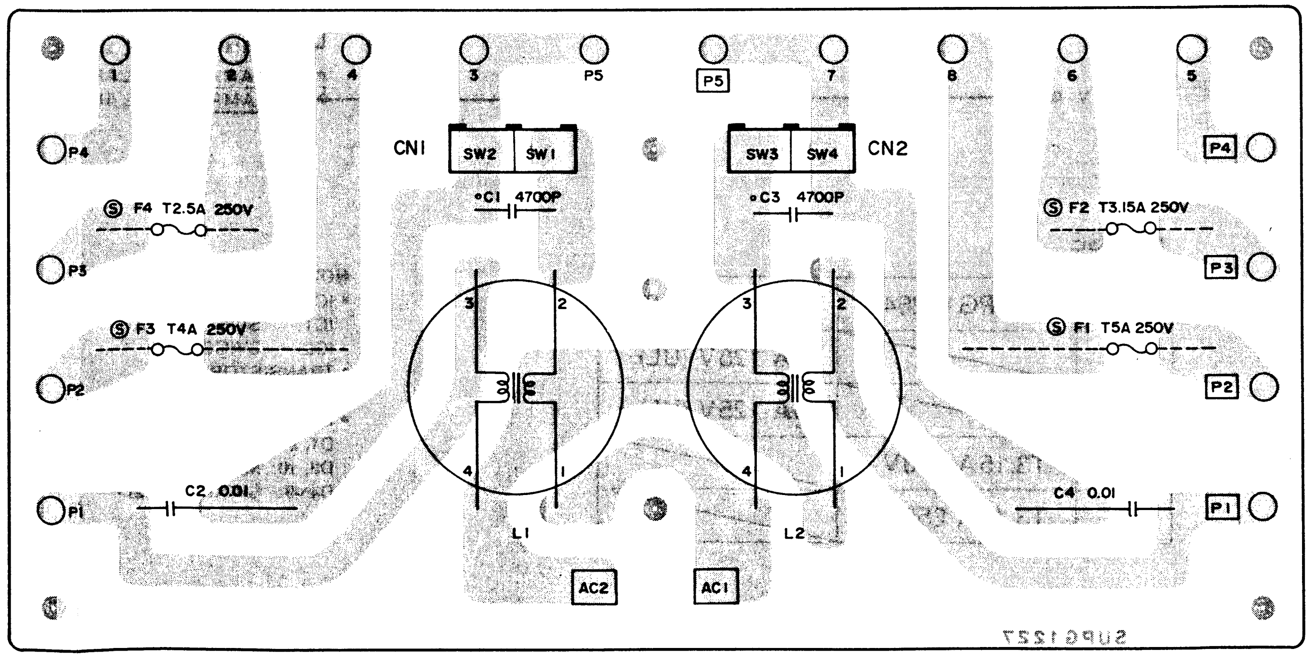
VOLTAGE SELECTOR
1
2
3
4
5
6
7
8
(RED)
(BRN)
(WHT)
(ORG)
(RED)
(BRN)
(WHT)
(ORG)
T2 SLTG5R14
P5 20V
(RED)
P4 0V
(YEL)
P3 220V
(BRN)
F4 T2.5A 250V
P2 120V
(ORG)
F3 T4A 250V
P1 0V
(BLU)
(YEL)
(WHT)
21V
0V
21V
(21V)
(0V)
(21V)
(YEL)
(RED)
21V
21V
(21V)
(21V)
(RED)
(BRN)
7V
7V
(7V)
(7V)
(BRN)
PS
CN1
SW2
SW1
(RED)
(RED)
POWER SW
L1
SLTGLF1
C1 4700P
C2 0.01
T1 SLTG5S11
P5 20V
(RED)
P4 0V
(YEL)
P3 220V
(BRN)
F2 T3.15A 250V
P2 120V
(ORG)
F1 T5A 250V
P1 0V
(BLU)
(BLU)
(BLK)
31V
0V
31V
(31V)
(0V)
(31V)
PA
CN2
SW4
SW3
(WHT)
(WHT)
AC1
AC2
AC 120/220/240V
(50/60Hz)
L2
SLTGLF1
C3 4700P
C4 0.01
(BLU)

SXPG12271



P5
P5
P4
P4
P3
P3
P2
P2
P1
P1
CN1
SW2
SW1
CN2
SW3
SW4
JP1
JP2
JP3
JP4
C1 4700P
C3 4700P
F4 T2.5A 250V
F2 T3.15A 250V
C2 0.01
C4 0.01
L1
L2
AC2
AC1
1
2
3
4
SUPG1227

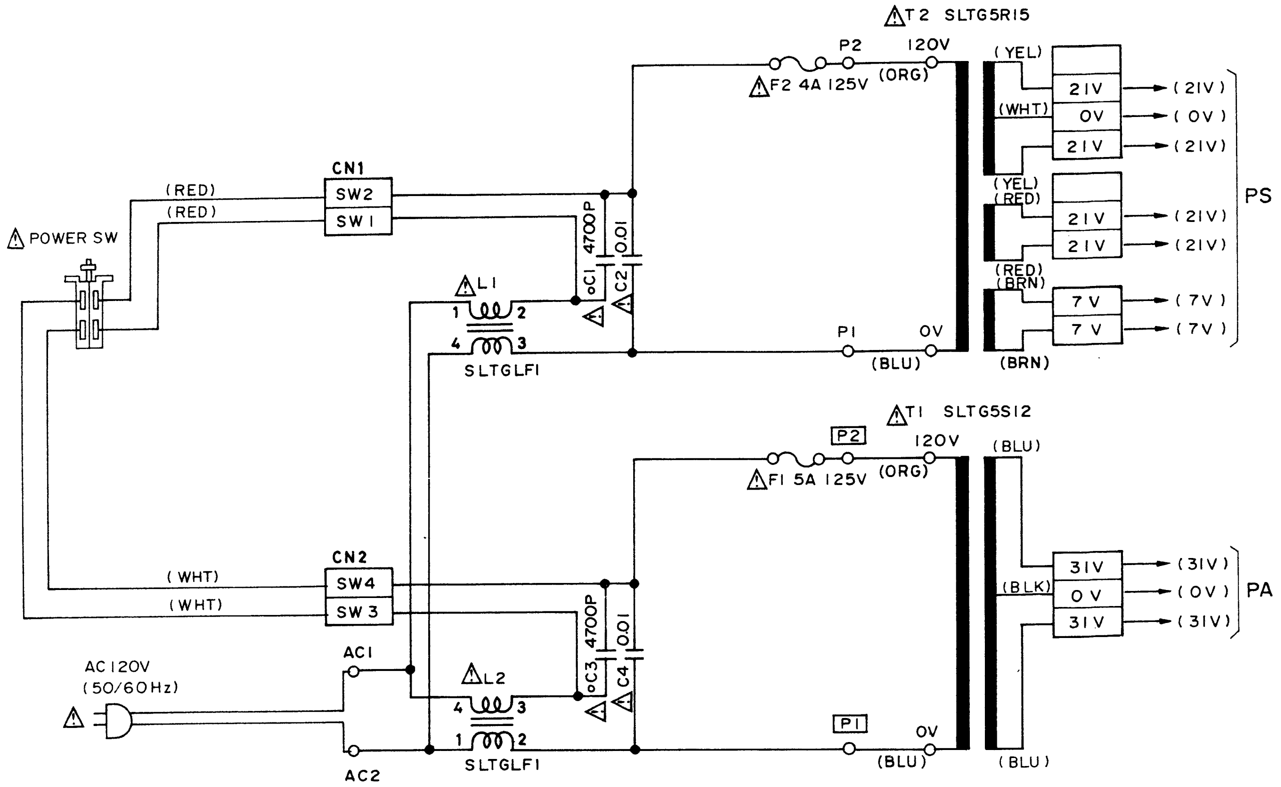
SXPG12272



1
2
3
4
5
6
7
8
P5
P5
P4
P4
P3
P3
P2
P2
P1
P1
CN1
SW2
SW1
CN2
SW3
SW4
C1 4700P
C3 4700P
F4 T2.5A 250V
F3 T4A 250V
F2 T3.15A 250V
F1 T5A 250V
C2 0.01
C4 0.01
L1
L2
AC2
AC1
SUPG1227

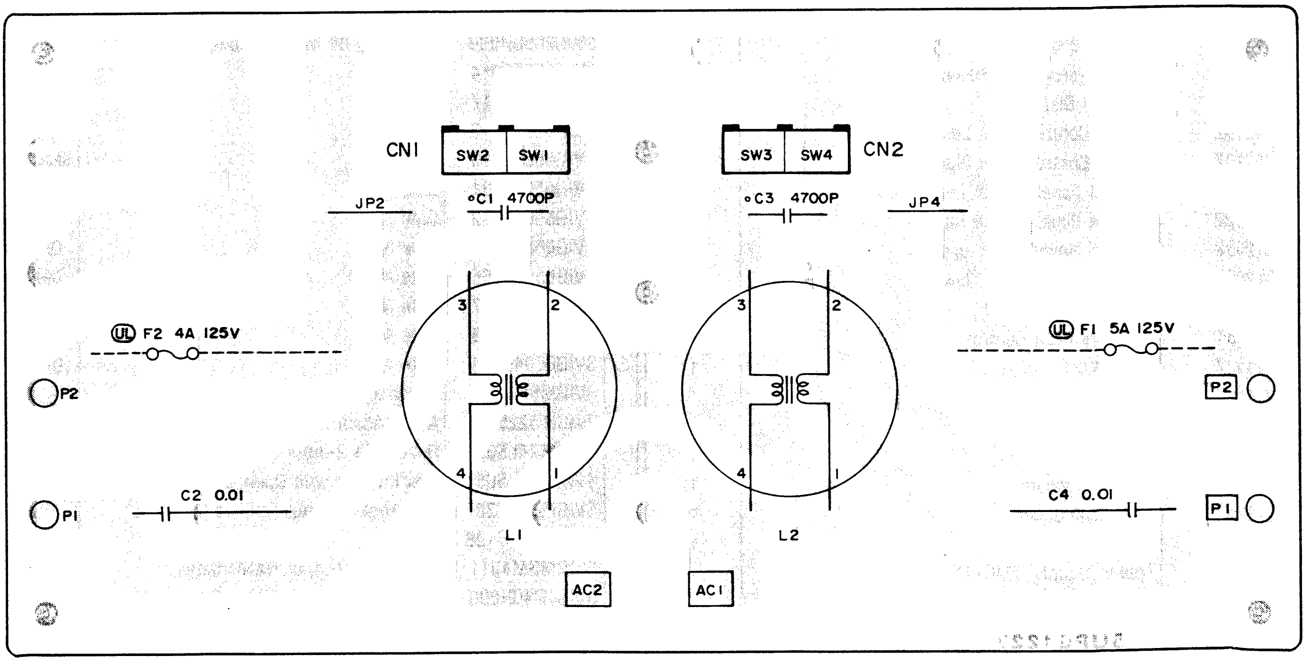
AC POWER SUPPLY CIRCUIT (ACP)

■ **Products for [MC], [XT] only.**



T2 SLTG5R15
P2
120V
(ORG)
F2 4A 125V
(YEL)
21V
0V
21V
(WHT)
(21V)
(0V)
(21V)
(YEL)
(RED)
21V
21V
(21V)
(21V)
PS
(RED)
(BRN)
7V
7V
(7V)
(7V)
(BRN)
P1
0V
(BLU)
CN1
SW2
SW1
(RED)
(RED)
POWER SW
L1
SLTGLF1
C1 4700P
C2 0.01
T1 SLTG5S12
P2
120V
(BLU)
F1 5A 125V
(ORG)
CN2
SW4
SW3
(WHT)
(WHT)
31V
0V
31V
(BLK)
(31V)
(0V)
(31V)
PA
C3 4700P
C4 0.01
AC1
AC 120V
(50/60Hz)
L2
SLTGLF1
AC2
P1
0V
(BLU)
(BLU)

SXPG12274



CN1
SW2
SW1
SW3
SW4
CN2
JP2
C1 4700P
C3 4700P
JP4
F2 4A 125V
F1 5A 125V
P2
P2
P1
P1
C2 0.01
C4 0.01
L1
L2
AC2
AC1

REPLACEMENT PARTS LIST

Notes:

1. Printed circuit boards are supplied only during the period of production.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

■ DIGITAL MEMORY PACK

	Part No.	Description	Per/Set
		SY-P2	
○	SXPG12241	Memory Pack P.C.B.	1
	⌈SVIGM512820R	IC, 16K Bit CMOS Static RAM	(2)
	MA165TA5VT	Diode	(1)
○	EXBEQ10104MM	Block Resistor, 100KΩ×10	(2)
○	SSSG1001A	Switch	(2)
○	⌊BR-2325-1HCR	Lithium Battery	(1)
		SY-P3	
○	SXPG12242	Memory Pack P.C.B.	1
○	⌈SVIG6264LP15	IC, 64K Bit CMOS Static RAM	(1)
	MA165TA5VT	Diode	(1)
○	EXBEQ12104MM	Block Resistor, 100KΩ×12	(1)
○	EXBEQ10104MM	Block Resistor, 100KΩ×10	(1)
○	SSSG1001A	Switch	(2)
○	⌊BR-2325-1HCR	Lithium Battery	(1)

■ ELECTRICAL PARTS

	Part No.	Description	Per/ Set
		PRINTED CIRCUIT BOARDS	
○	SXPG12062	Tone Generator Module	1
○	SXPG12311	Sustain Control	3
○	SXPG12072	System Assigner	1
○	SXPGA11742	Organ	1
○	SXPGB11742	Tone Generator	1
○	SXPG12081	Percussive Tone	1
○	SXPG12121	Vocal Ensemble	1
○	SXPGA12091	Orchestral Presets	1
○	SXPGB12091	Selector	1
○	SXPG11684	Accompaniment	1
○	SXPG12101	Solo Synthe Presets	1
○	SXPG12102	Bass	1
○	SXPG12171	Drum Percussion	1
○	SXPGA12331	Tremolo & Phaser Modulation	1
○	SXPGB12331	Celeste & String Ensemble	1
○	SXPGA12141	Mixing 1	1
○	SXPGB12141	Mixing 2	1
	SXPG11351	Reverb	1
○	SXPG12151	Mother Board	1
○	SXPG12111	Digital Percussive Presets	1
○	SXEG31A	Musical Display	1
○	SXPG12192	Upper Control Panel Left	1
○	SXPG12202	Upper Control Panel Right	1
○	SXPGA12221	Control Panel Switch Left	1
○	SXPGB12221	Control Panel Switch Right	1
○	SXPG12032	Manual Keyboard 1, upper	1
○	SXPG12031	Manual Keyboard 1, lower	1
○	SXPG12041	Manual Keyboard 2	2
○	SXPG12281	Memory Pack Control	1
○	SXPG11527	Jack 1	1
○	SXPG11528 **MC**	Jack 1, [MC] only	1
○	SXPG12161	Jack 2	1
○	SXPG103211	Expression	1
○	SXPG11702	Pedal Keyboard	1
○	SXPG12252	Power Amplifier	1
○	SXPG12264	Power Supply	1
○	SXPG12266	Power Supply, [MC] [XT] only	1
○	SXPG12271	AC Power Supply	1
○	SXPG12272	AC Power Supply, [EK], [XS], [XL], [XR], [X], [XX], [XV] only	1
○	SXPG12274	AC Power Supply, [MC], [XT] only	1

	Part No.	Description		Per/ Set
		INTEGRATED CIRCUITS		
	SVIG3256PC35	256K Bit Mask ROM	DP	1
	SVIG3256PC36	256K Bit Mask ROM	DP	1
○	SVIG3256PE61	256K Bit Mask ROM	DP	1
○	SVIG3256PE48	256K Bit Mask ROM	SPS	1
○	SVIG3256PE49	256K Bit Mask ROM	SPS	1
○	SVIG3256PE60	256K Bit Mask ROM	BAS	1
○	SVIG3256PE56	256K Bit Mask ROM	DPPS	1
○	SVIG3256PE57	256K Bit Mask ROM	DPPS	1
○	SVIG3256PE58	256K Bit Mask ROM	DPPS	1
○	SVIG3256PE59	256K Bit Mask ROM	DPPS	1
○	MN23128PGD	128K Bit Mask Programmable ROM	SAS	1
○	MN23128PGE	128K Bit Mask Programmable ROM	SAS	1
○	MN23128PGF	128K Bit Mask Programmable ROM	SAS	1
○	MN23128PGC	128K Bit Mask Programmable ROM	BAS	1
	SVIGM512820R	16K Bit CMOS Static RAM	SAS	1
	SVIG7811G028	1 Chip, 8 Bit Microcomputer	SAS	1
○	SVIG8041145	1 Chip, 8 Bit Microcomputer	OPS	1
○	SVIG8049-593	1 Chip, 8 Bit Microcomputer	DPPS	1
○	SVIG8050H090	1 Chip, 8 Bit Microcomputer	SPS, BAS	2
	SVIG65002014	Gate Array	SAS	1
	SVIG65002017	Gate Array	SAS	1
	SVIG65002018	Gate Array	SEL	1
	SVIG65002019	Gate Array	SPS, BAS	2
	SVIG65010021	Gate Array	DP	1
	SVIG65010022	Gate Array	REV	1
○	SVIG65020065	Gate Array	DPPS	1
○	SVIG65020066	Gate Array	DPPS	1
○	SVIG65020067	Gate Array	DPPS	1
○	SVIG65020068	Gate Array	DPPS	1
○	SVIG65040013	Gate Array	DPPS	1
	SVIGM5K4164	Dynamic RAM	REV	1
	SVIGM5225LL	ADM (Adapt Differential Modulation)	REV	16
	SVIGM74LS00	Quadruple 2-Input Positive NAND Gates	SAS	1
	SVIGM74LS05	Hex Inverter with Open Collector Output	JACK 1	1
	SVIGM74LS32	Quadruple 2-Input Positive OR Gates	SAS	1
	SVIGM74LS138	Decoder	SAS	2
	SVIGMSM4011	Quadruple 2-Input NAND Gates	LPM, CSM	9
	SVIGTC40H000	Quadruple 2-Input NAND Gates	REV	1
	SVIGTC40H002	Quadruple 2-Input Positive NOR Gates	ACC	1
	SVIGTC40H004	Hex Inverters	SAS, TG OPS, DPPS	4
	SVIGTC40H074	Dual D-Type Flip-Flops	DPPS	1

	Part No.	Description		Per/ Set
	SVIGTC40H374	Octal D-Type Flip-Flops	ACC	2
	SVIGTC40H393	4-Bit Binary Counter	TG	1
	SVIGTC4013BP	Dual D-Type Flip-Flops	ACC	1
	SVIGTC40174B	Hex D-Type Flip-Flops	PCT	1
	SVIGTC4053BP	2-Channel Multiplexer	OPS	1
	SVIGHD14051B	8-Channel Multiplexer	OPS	1
	SVIGHD14046B	Phase-Locked Loop	SPS, BAS	2
	SVIGTC4016BP	Analog Switch	DPPS	8
	SVIGM53216	Hex Inverters	SAS, ACC	2
	SVIGM53217	Hex Buffers (Open Collector)		18
○	SVIGM5216LL	Operational Amplifier	MIX2	3
	SVIGM5218L (SVIGNJM4558S)	Operational Amplifier		107
	SVIGNJM082D	Operational Amplifier	OPS, SPS BAS, DP	4
○	SVIGM5222L	Dual VCA	PCT	2
○	SVIGMC14504B	Hex Level Shifter	DPPS	3
	SVIGUPC624C	8 Bit D-A Converter	SPS, BAS DP, DPPS	5
○	SVIGUPC357C	Operational Amplifier	DPPS	1
○	SVIGUPC648C	12 Bit D-A Converter	DPPS	1
○	SVIGBA9221	12 Bit D-A Converter	DPPS	(1)
○	SVIGUPC1252H	VCA, for NR System	OPS, MIX1 MIX2	10
○	SVIGUPC1253H	RMS Level Censor, for NR system	OPS, MIX1	3
	SVIGBA6110	VCA (Voltage Controlled Amplifier)		10
	SVIGBA6704	VCF (Voltage Controlled Filter)	OPS, ACC	2
	SVIGUPD6303G	Top Octave Synthe LSI	TGM	1
	SVIGUPD6304G	Tone Generator LSI	TGM	3
	SVIGUPD4066B	Quadruple Bilateral Switch		17
	SVIGTA61	Transister Array	CPSL, CPSR	2
○	SVIGLC7800	I/O Expander	MKB2	2
	SVIGLM1894N	Noise Reduction	MIX2	2
○	MN15621PGA	4 Bit 1 Chip Microcomputer		8
○	MN15621PGB	4 Bit 1 Chip Microcomputer	MPC	1
	MN3006	BBD for Audio Signal Delays (128-stage)	LPM, CSM	5
	MN3004	BBD for Audio Signal Delays (512-stage)	CSM	3
	AN6913	Dual Comparator	REV, LPM MIX1, MIX2	6
○	SVIGST4036M2	Power Amp Driver	PA	1
○	SVIGST4040M2	Power Amp Driver	PA	1
○	SVIGST4191M2	Power Amp Driver	PA	1
○	SVIGSTK770	Voltage Regulator	PS	1
○	SVIGSTK7562J	Voltage Regulator	PS	1

TRANSISTORS

	2SA830B			8
	2SA1015GR			22
	2SC1047C			20
	2SC2320LFG			47
	2SC1815GR			9
	2SC828AQRS			1
	2SC1685RQ			2
	2SC1328ST			1
	2SJ40CD	FET		22

DIODES

S	MA162A	MA150IR		198
	MA165TA5VT			144
○	MA1120M			6
○	MA1068LF			2
	SVDS3V20	⚠ Rectifier		10
	SVDGSM1A02LF	⚠ Rectifier		7

	Part No.	Description	Per/ Set
	MA1036MH		1
○	SVDGEK13		1

QUARTZ & CERAMIC OSCILLATORS

	SVQG43U1200A	12MHz, Quartz Oscillator	1
	SVQG43U7991T	8MHz, Quartz Oscillator	1
	SVQGCSA110MT	11MHz, Ceramic Oscillator	3
	SVQGCSA600MT	6MHz, Ceramic Oscillator	1
	SVQGCSA800MT	8MHz, Ceramic Oscillator	1
	EF0A4R5M01A	4.5MHz, Ceramic Oscillator	9

COILS

	ELQS180KB	18μH, Coil (Master Clock OSC)	2
	SLCSC471J	0.47mH, Coil	2
○	SLCG4A030	3μH, Coil	4
○	SLCG4A100D	10μH, Coil	3
○	SLCG4A201T	0.2mH, Coil	1
○	SLCG1R5A201T	0.2mH, Coil	2
○	SLCG375114B		1

LED'S, LAMPS

	LN29RP	LED (Power Indicator)	1
	SEL2210SLFM1	LED (red)	180
	SEL2710KLFM1	LED (yellow)	26
	XAMR55P	Lamp, Expression	1
	XAMR89S	Lamp, (Orchestral Conductor display)	8
○	XAMG2S50	Lamp, (Musical display)	2
○	XAMG1S50	Lamp, (Musical display)	1

CDS

	SVEG5	Light Sensitive Device	1

SWITCHES

	ESB70291S ⚠	Power Switch	1
	ESB70277T ⚠	Power Switch [MC] only	1
	ESE37209 ⚠	Voltage Selector, [EK], [XS], [XL], [XR], [X], [XX], [XV] only	1
	SSHG1029A	Switch, for Tang Type	48
	SSHG1030A	Switch, for Push Type	196
	SSHG1020A	Knee Lever Push Switch	1
	SSLG1005A	Knee Lever Leaf Switch	1
	SSSG2001A	Line Out Channel Selector Switch	2

VARIABLE RESISTORS

	EVD3520B24G	20KΩB, Tempo Control	1
	EWHD5A576A54	50KΩA, Mic Volume	1

	Part No.	Description	Per/ Set
		SEMI-FIXED RESISTORS	
	EVN60AA00B54	50KΩ	3
	EVN60AA00B24	20KΩ	3
	EVN60AA00B14	10KΩ	5
	EVN60AA00B23	2KΩ	2
	EVN61AA00B13	1KΩ	1
	EVNG0E01B13A	1KΩ	1
	EVN61AA00B52	500Ω	1
		COMPONENTS COMBINATIONS	
○	SREG6A0511MM	Custom Block Resistor	4
	EXBP84222MM	2.2KΩ×4, Block Resistor	1
	EXBP86122MM	1.2KΩ×6, Block Resistor	1
	EXBP86103MM	10KΩ×6, Block Resistor	1
	EXBP88102MM	1KΩ×8, Block Resistor	1
	EXBP88122MM	1.2KΩ×8, Block Resistor	3
	EXBP88222MM	2.2KΩ×8, Block Resistor	3
	EXBP88472MM	4.7KΩ×8, Block Resistor	2
	EXBP88103MM	10KΩ×8, Block Resistor	2
	EXBP88334MM	330KΩ×8, Block Resistor	1
	EXBP88105MM	1MΩ×8, Block Resistor	1
	EXBP810102MM	1KΩ×10, Block Resistor	1
	EXBP811102MM	1KΩ×11, Block Resistor	1
	EXBP812102MM	1KΩ×12, Block Resistor	1
	EXATA223S	Noise Suppression Filter	9
		JACKS	
	SJJG210A	Mic Jack	1
	SJJG220A	Line Out Jack, Aux Jack (except for [MC])	4, MC 3
	SJJG230A	Line Out Terminal	1
	SJJG240A	Headphone Jack	1
	SJJG250A	F.D. Jack	1
		RELAYS	
	SSYGMR5212S	Relay	2
○	SSYGAJD421	Relay	2
		SPEAKERS	
○	EAS30PL122S	30cm, 5Ω	1
○	EAS20PM224SA	20cm, 8Ω	3
	EAS6HH11S	6cm, 6Ω	2
		FUSES	
	XBA2C31TR0 ⚠	T 3.15A 250V	3
	XBA2C25TR0 ⚠	T 2.5A 250V	1
	XBA1F30NU14 ⚠	3A 125V [MC], [XT] only	2
	XBA1F40NU14 ⚠	4A 125V	1
	XBA1F50NU14 ⚠	5A 125V	1

	Part No.	Description	Per/ Set
	XBA2C31TR0 ⚠	T 3.15A 250V [EK], [XS], [XL], [XR], [X], [XX], [XV] only	3
	XBA2C25TR0 ⚠	T 2.5A 250V	1
	XBA2C40TR0 ⚠	T 4A 250V	1
	XBA2C50TR0 ⚠	T 5A 250V	1
		TRANSFORMERS, LINE FILTER	
○	SLTG5R14 ⚠	Power Transformer	1
○	SLTG5S11 ⚠	Power Transformer	1
○	SLTG5R15 ⚠	Power Transformer [MC], [XT] only	1
○	SLTG5S12 ⚠	Power Transformer	1
	SLTGLF1 ⚠	Line Filter	2
		AC CORD, PLUG	
	SJAG24 ⚠	AC Cord	1
	SJAG27 ⚠	AC Cord, [EW] only	1
	SJAG25 ⚠	AC Cord, [EK], [XS] only	1
	SJAG23 ⚠	AC Cord, [XL], [XR] only	1
	SJAG22 ⚠	AC Cord, [MC], [XT] only	1
	SJP5213-1 ⚠	Attachment Plug, [X], [XX], [XV] only	1
		ASSEMBLY PARTS	
○	SXVG6010B	Expression Unit	1
	SXVG3031A	Knee Lever Unit	1
		WIRING PARTS (See wiring diagram on page II-7, II-8)	
○	SWKG0213ZA	Connector, with Wire	1
○	SWKG0214ZA	Connector, with Wire	1
○	SWKG0215ZA	Connector, with Wire	1
○	SWKG0331ZA	Connector, with Wire	1
○	SWKG0332ZB	Connector, with Wire	1
○	SWKG0333ZA	Connector, with Wire	1
○	SWKG0334LSA	Connector, with Wire	1
○	SWKG0335LSA	Connector, with Wire	1
○	SWKG0338ZA	Connector, with Wire	1
○	SWKG0434LSA	Connector, with Wire	1
○	SWKG0435ZA	Connector, with Wire	1
○	SWKG0436LSA	Connector, with Wire	1
○	SWKG0437LSA	Connector, with Wire	1
○	SWKG0430LTB	Connector, with Wire	1
	SWKG056ZA	Connector, with Wire	1
○	SWKG058ZA	Connector, with Wire	1
○	SWKG0639ZB	Connector, with Wire	1
○	SWKG0640LSA	Connector, with Wire	1
○	SWKG0641LSA	Connector, with Wire	1
○	SWKG0839LSA	Connector, with Wire	1
○	SWKG0840LSB	Connector, with Wire	1
○	SWKG1017LSA	Connector, with Wire	1
○	SWKG1310LSA	Connector, with Wire	1
○	SWKG1311LSA	Connector, with Wire	1

■ Numbering System of Resistor

Resistor Type	Wattage	Tolerance
ERD : Carbon	S2 : 1/4W	F : ±1%
ERD—F : Carbon Flame-Proof	S1 : 1/2W	G : ±2%
ERO : Metal Film	2 : 1/4W	J : ±5%
	10 : 1/8W	K : ±10%
	25 : 1/4W	
	50 : 1/2W	
ERG : Metal Oxide	1 : 1W	
ERX : Metal Film	2 : 2W	
ERF : Wirewound, Flame-proof	5 : 5W	

Example

ERD	S2	T	J	101
Type	Wattage	Shape	Tolerance	Value

ERD	2	F	C	G	101
Type	Wattage	Flame Proof	Fuse Type	Tolerance	Value

ERO	10	T	K	F	2201
Type	Wattage	Shape	Peculiarity use	Tolerance	Value

ERG (X)	1	AN	J	121
Type	Wattage	Shape	Tolerance	Value

ERF	5	Z	X	R22
Type	Wattage	Shape	Peculiarity use	Value

■ Numbering System of Capacitor

Capacitor Type	Symbol Mark	Voltage		Tolerance
		ECEA Type	Others	
ECEA (T) : Electrolytic		0J : 6.3V	1H : 50V	ECEA Type : ±20%
ECEA—N : Non-Polar Electrolytic	Ⓝ	1A : 10V	1E : 25V	J : ±5%
ECEA—Y : Non-Polar Electrolytic	Ⓨ	1C : 16V	1V : 35V	K : ±10%
ECEA—M : Electrolytic, MSR Series	(MS)	1E : 25V	50 : 50V	M : ±20%
ECEA—Z : Electrolytic, Z Series	Ⓩ	1V : 35V		
ECEA—K : Electrolytic, miniature type	Ⓚ	1H : 50V		
ECQV : TF Capacitor	(TF)	50Y : 50V		
ECQM : Polyester		50M : 50V		
ECC : Ceramic	○	16M : 16V		
ECK : Ceramic	○	50Z : 50V		
ECS : Tantalume Solid Electrolytic	Ⓣ			

Example

ECEA	0J	U	330
Type	Voltage	Peculiarity use	Value

ECEA (T)	50	M (Z)	R47	R
Type	Voltage	Peculiarity use	Value	Special use

ECQV (M)	1H	102	J
Type	Voltage	Value	Tolerance

ECC (K)	R	1H	220	J
Type	Shape	Voltage	Value	Tolerance

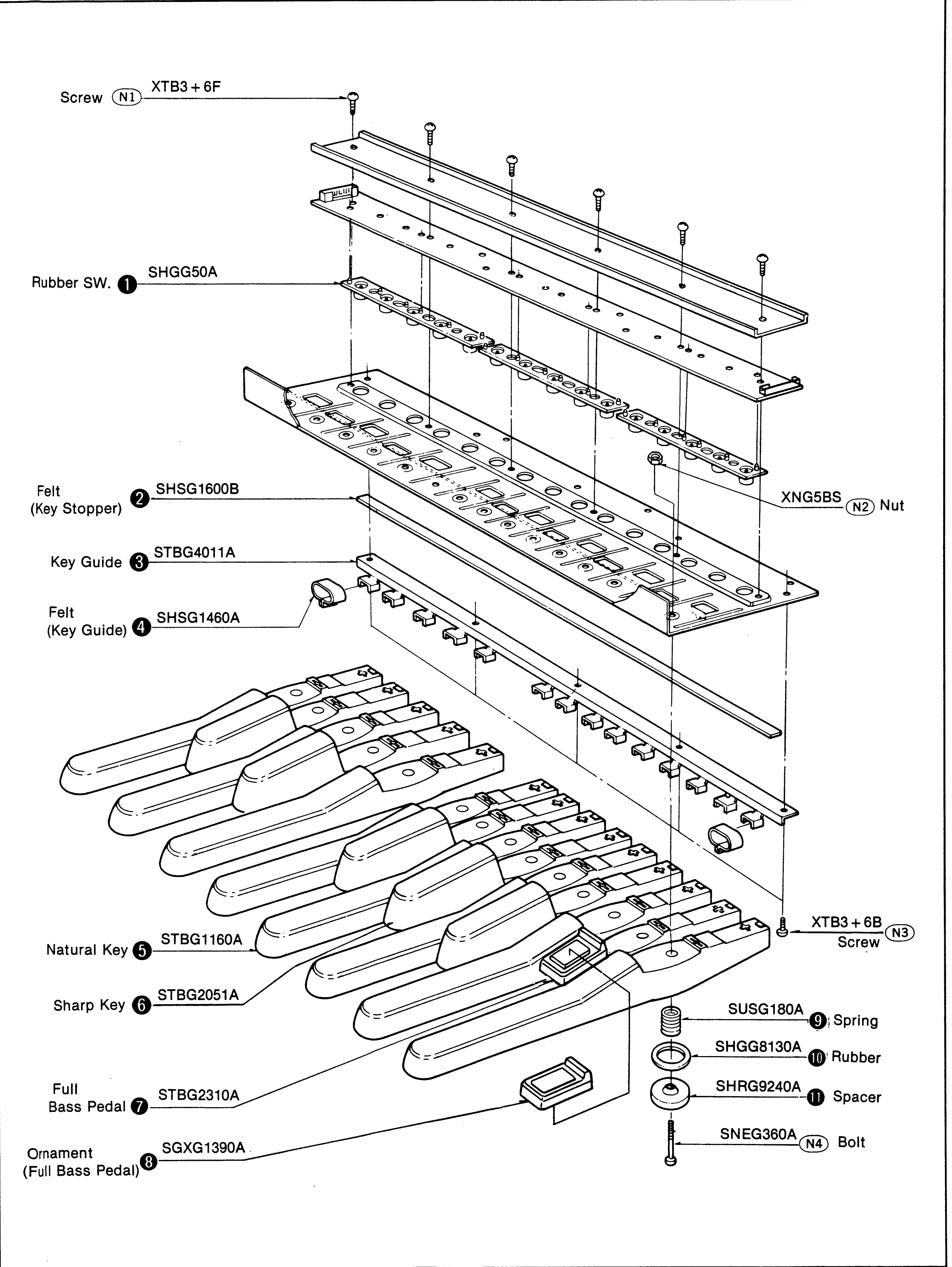
ECS	F	1V	Z	105
Type	Shape	Voltage	Peculiarity use	Value

Part No.	Description	Per/ Set
RESISTORS		
ERDS2TJ100	10Ω	2
ERDS2TJ120	12Ω	
ERDS2TJ150	15Ω	
ERDS2TJ180	18Ω	
ERDS2TJ220	22Ω	3
ERDS2TJ270	27Ω	
ERDS2TJ330	33Ω	1
ERDS2TJ390	39Ω	
ERDS2TJ470	47Ω	61
ERDS2TJ560	56Ω	
ERDS2TJ680	68Ω	9
ERDS2TJ820	82Ω	1
ERDS2TJ101	100Ω	6
ERDS2TJ121	120Ω	
ERDS2TJ151	150Ω	13
ERDS2TJ181	180Ω	
ERDS2TJ221	220Ω	4
ERDS2TJ271	270Ω	4
ERDS2TJ331	330Ω	19
ERDS2TJ391	390Ω	
ERDS2TJ471	470Ω	9
ERDS2TJ561	560Ω	2
ERDS2TJ681	680Ω	13
ERDS2TJ821	820Ω	19
ERDS2TJ102	1 KΩ	68
ERDS2TJ122	1.2 KΩ	59
ERDS2TJ152	1.5 KΩ	15
ERDS2TJ182	1.8 KΩ	
ERDS2TJ222	2.2 KΩ	46
ERDS2TJ272	2.7 KΩ	3
ERDS2TJ332	3.3 KΩ	50
ERDS2TJ392	3.9 KΩ	2
ERDS2TJ472	4.7 KΩ	141
ERDS2TJ562	5.6 KΩ	5

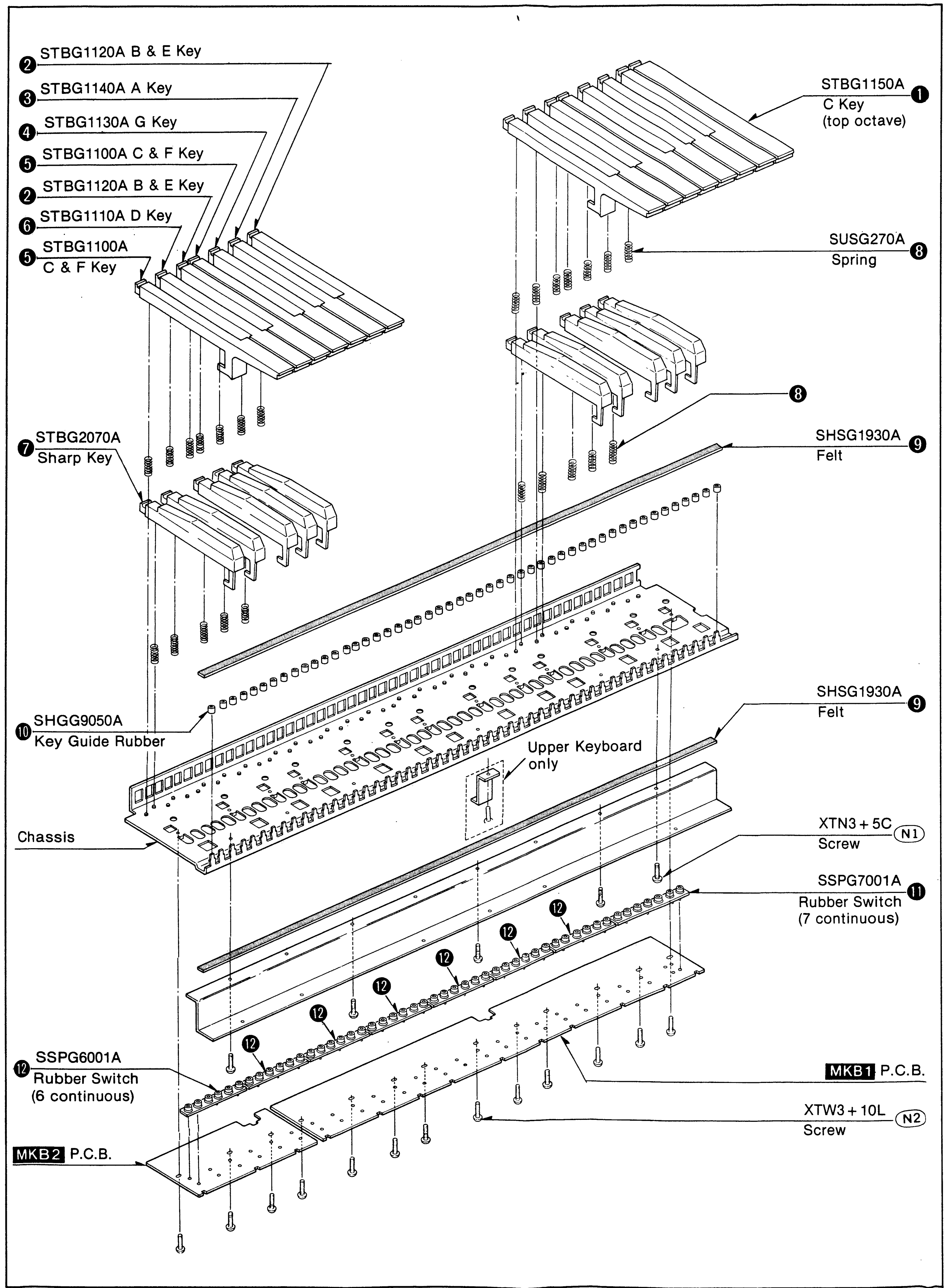
Part No.	Description	Per/ Set
ERDS2TJ682	6.8 KΩ	32
ERDS2TJ822	8.2 KΩ	24
ERDS2TJ103	10 KΩ	148
ERDS2TJ123	12 KΩ	22
ERDS2TJ153	15 KΩ	46
ERDS2TJ183	18 KΩ	26
ERDS2TJ223	22 KΩ	81
ERDS2TJ273	27 KΩ	39
ERDS2TJ333	33 KΩ	116
ERDS2TJ393	39 KΩ	27
ERDS2TJ473	47 KΩ	132
ERDS2TJ563	56 KΩ	32
ERDS2TJ683	68 KΩ	26
ERDS2TJ823	82 KΩ	26
ERDS2TJ104	100 KΩ	101
ERDS2TJ124	120 KΩ	19
ERDS2TJ154	150 KΩ	59
ERDS2TJ184	180 KΩ	23
ERDS2TJ224	220 KΩ	52
ERDS2TJ274	270 KΩ	6
ERDS2TJ334	330 KΩ	53
ERDS2TJ394	390 KΩ	5
ERDS2TJ474	470 KΩ	36
ERDS2TJ564	560 KΩ	5
ERDS2TJ684	680 KΩ	23
ERDS2TJ824	820 KΩ	
ERDS2TJ105	1 MΩ	30
ERDS2TJ125	1.2 MΩ	
ERDS2TJ155	1.5 MΩ	28
ERDS2TJ185	1.8 MΩ	
ERDS2TJ225	2.2 MΩ	6
ERDS2TJ275	2.7 MΩ	
ERDS2TJ335	3.3 MΩ	
ERDS2TJ395	3.9 MΩ	
ERDS2TJ475	4.7 MΩ	

	Part No.	Description	Per/ Set
	RESISTORS		
	ERDS2TJ565	5.6MΩ	
	ERDS2TJ685	6.8MΩ	
	ERDS2TJ825	8.2MΩ	
	ERDS1VJ222	1/2W 2.2KΩ	4
	ERD25VJIR0	1/4W 1Ω	1
	ERD2FCJ4R7	🄵 1/4W 4.7Ω, Fuse Type	11
	ERD2FCJ6R8	🄵 1/4W 6.8Ω, Fuse Type	1
	ERD2FCG100	🄵 1/4W 10Ω, Fuse Type	26
	ERD2FCG220	🄵 1/4W 22Ω, Fuse Type	23
	ERD2FCG101	🄵 1/4W 100Ω, Fuse Type	8
	ERD25FJ470	Ⓕ 1/4W 47Ω	1
	ERD25FVJ4R7	Ⓕ 1/4W 4.7Ω	5
	ERD50FJ4R7	Ⓕ 1/2W 4.7Ω	4
	ERD50FJ221	Ⓕ 1/2W 220Ω	2
	ERX1ANJR47	Ⓕ 1W 0.47Ω	1
	ERG1ANJ101	Ⓕ 1W 100Ω	2
	ERG1ANJ151	Ⓕ 1W 150Ω	2
	ERG1ANJ472	Ⓕ 1W 4.7KΩ	1
	ERX2ANJR22	Ⓕ 2W 0.22Ω	2
	ERF5ZXR22	Ⓕ 5W 0.22Ω	1
	ERO10TKF2201	1/8W, 2.2KΩ, ±1%	2
	CAPACITORS		
	ECEA0JU470	6.3V 47μF	4
	ECEA0JU101	6.3V 100μF	7
	ECEA0JU221	6.3V 220μF	6
	ECEA0JU331	6.3V 330μF	1
	ECEA0JU471	6.3V 470μF	1
	ECEA1CU100	16V 10μF	8
	ECEA1CU470	16V 47μF	28
	ECEA1CU101	16V 100μF	18
	ECEA1CU221	16V 220μF	7
	ECEA1CU331	16V 330μF	9
	ECEA1CU102	16V 1000μF	3
	ECEA1EU4R7	25V 4.7μF	2
	ECEA1EU100	25V 10μF	5
	ECEA1EU330	25V 33μF	25
	ECEA1EU470	25V 47μF	20
	ECEA1EU101	25V 100μF	6
	ECEA1VU222	35V 2200μF	2
	ECEA1HUR47	50V 0.47μF	5
	ECEA1HUR68	50V 0.68μF	1
	ECEA1HU010	50V 1μF	33
	ECEA1HU2R2	50V 2.2μF	6
	ECEA1HU3R3	50V 3.3μF	1
	ECEA1HU100	50V 10μF	10
	ECEA1HU470	50V 47μF	2
	ECEA1HK0R1	Ⓚ 50V 0.1μF	4
	ECEA1HKR22	Ⓚ 50V 0.22μF	1
	ECEA1CN100S	Ⓝ 16V 10μF	1
	ECEA1HN010S	Ⓝ 50V 1μF	36
	ECEA50Y2R7	Ⓨ 50V 2.7μF	2
	ECEA50ZR1	Ⓩ 50V 0.1μF	5
	ECEA50ZR22	Ⓩ 50V 0.22μF	4
	ECEA50ZR68	Ⓩ 50V 0.68μF	4
	ECEA16M10R	(MS) 16V 10μF	8
	ECEA50M1R	(MS) 50V 1μF	2
	ECEA50M2R2R	(MS) 50V 2.2μF	1
	ECET50R682SW	50V 6800μF	2
	ECSF1VZ105	Ⓣ 35V 1μF	29
	ECQM1H102KV	0.001μF	70
	ECQM1H152KV	0.0015μF	20
	ECQM1H222KV	0.0022μF	16
	ECQM1H332KV	0.0033μF	17
	ECQM1H472KV	0.0047μF	41
	ECQM1H682KV	0.0068μF	26
	ECQM1H103KV	0.01μF	32
	ECQM1H153KV	0.015μF	16
	ECQM1H223KV	0.022μF	18
	ECQM1H333KV	0.033μF	19
	ECQM1H473KV	0.047μF	37
	ECQM1H683KV	0.068μF	9
	ECQM1H104KV	0.1μF	9
	ECQM1H154KV	0.15μF	1
	ECQM1H224KV	0.22μF	1
	ECQV1H102JZ	(TF) 0.001μF	13
	ECQV1H152JZ	(TF) 0.0015μF	8
	ECQV1H222JZ	(TF) 0.0022μF	19
	ECQV1H332JZ	(TF) 0.0033μF	14
	ECQV1H472JZ	(TF) 0.0047μF	15
	ECQV1H682JZ	(TF) 0.0068μF	14
	ECQV1H103JZ	(TF) 0.01μF	16
	ECQV1H153JZ	(TF) 0.015μF	6
	ECQV1H223JZ	(TF) 0.022μF	6
	ECQV1H333JZ	(TF) 0.033μF	3
	ECQV1H473JZ	(TF) 0.047μF	3
	ECQV1H683JZ	(TF) 0.068μF	4
	ECQV1H104JZ	(TF) 0.1μF	11
	ECQV1H154JZ	(TF) 0.15μF	2
	ECQV1H224JZ	(TF) 0.22μF	25
	ECQV1H334JZ	(TF) 0.33μF	11
	ECQV1H474JZ	(TF) 0.47μF	3
	ECCR1H030C	○ 3PF	3
	ECCR1H100D	○ 10PF	1
	ECCR1H150J	○ 15PF	1
	ECCR1H220J	○ 22PF	28
	ECCR1H330J	○ 33PF	9
	ECCR1H470J	○ 47PF	16
	ECCR1H680J	○ 68PF	10
	ECCR1H101J	○ 100PF	42
	ECCR1H151J	○ 150PF	15
	ECCR1H221J	○ 220PF	27
	ECCR1H331J	○ 330PF	33
	ECCR1H471J	○ 470PF	34
	ECCR1H681J	○ 680PF	22
	ECCW1H330J	○ 33PF	9
	ECCW1H101J	○ 100PF	11
	ECCW1H471J	○ 470PF	8
	ECKR1E473ZV	○ 0.047μF	174
	ECKW1H222KB	○ 0.0022μF	2
	ECKW1E473ZV	○ 0.047μF	11
⚠	ECKCVA1472MF	○ 4700PF, Line Capacitor	2
⚠	ECQU2A103MF	0.01μF 250V, Across-the-Line Capacitor	2
⚠	ECQU1A103MH	0.01μF 125V Across-the Line Capacitor, [MC]	2
	EECW2R3A3R3	2.3V, 3.3F, Liquid Electrolyte Double Layer	3

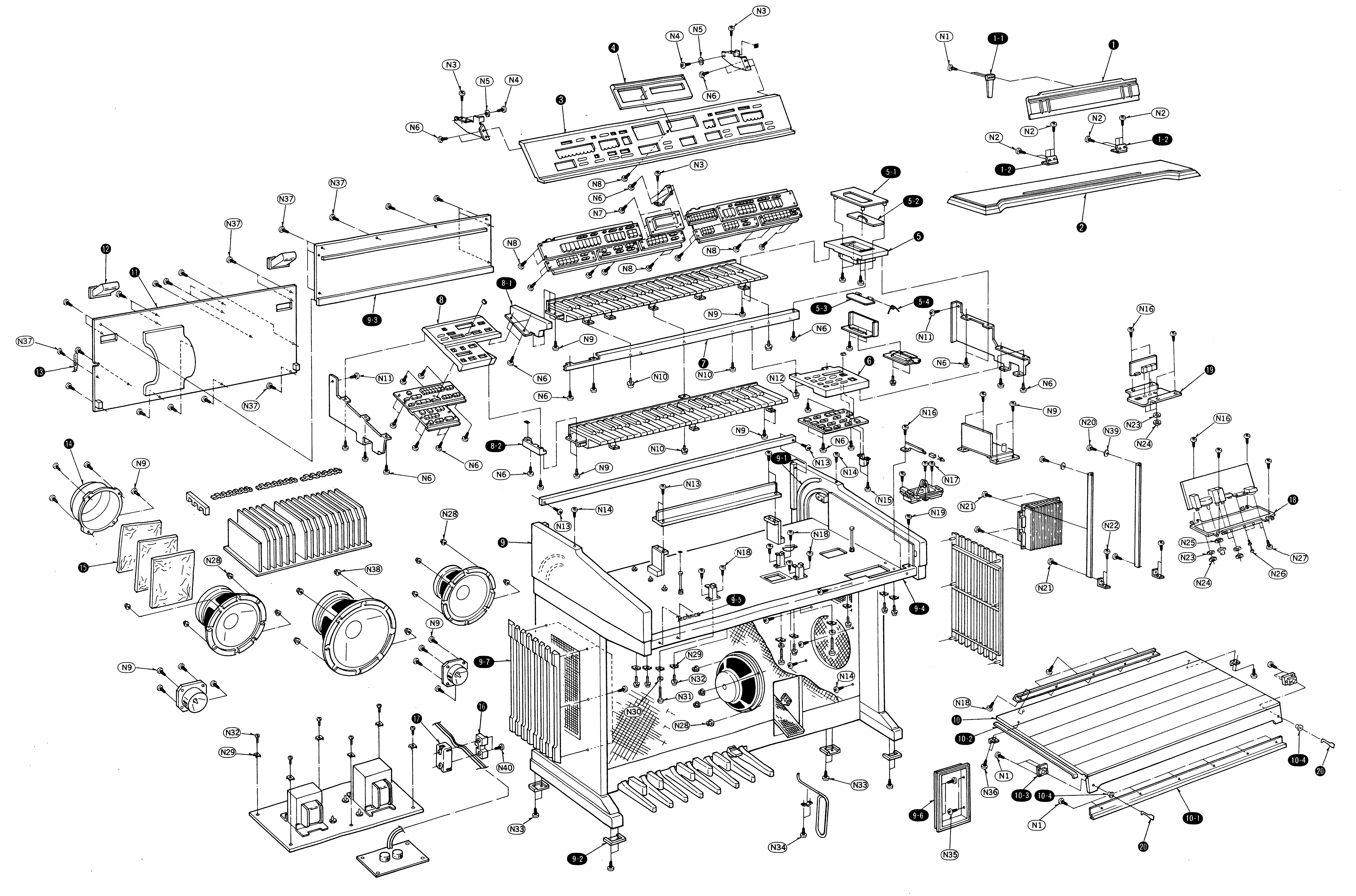
EXPLODED VIEWS OF PEDAL KEYBOARD


Screw (N1) XTB3+6F
Rubber SW. ❶ SHGG50A
Felt (Key Stopper) ❷ SHSG1600B
XNG5BS (N2) Nut
Key Guide ❸ STBG4011A
Felt (Key Guide) ❹ SHSG1460A
XTB3+6B (N3) Screw
Natural Key ❺ STBG1160A
Sharp Key ❻ STBG2051A
SUSG180A ❾ Spring
SHGG8130A ❿ Rubber
Full Bass Pedal ❼ STBG2310A
SHRG9240A ⓫ Spacer
SNEG360A (N4) Bolt
Ornament (Full Bass Pedal) ❽ SGXG1390A

EXPLODED VIEWS OF MANUAL KEYBOARD


❷ STBG1120A B & E Key
❸ STBG1140A A Key
❹ STBG1130A G Key
❺ STBG1100A C & F Key
❷ STBG1120A B & E Key
❻ STBG1110A D Key
❺ STBG1100A C & F Key
STBG1150A ❶ C Key (top octave)
SUSG270A ❽ Spring
❽
❼ STBG2070A Sharp Key
SHSG1930A ❾ Felt
SHSG1930A ❾ Felt
❿ SHGG9050A Key Guide Rubber
Upper Keyboard only
Chassis
XTN3+5C (N1) Screw
SSPG7001A ⓫ Rubber Switch (7 continuous)
⓬
⓬
⓬
⓬
⓬
⓬
⓬
⓬ SSPG6001A Rubber Switch (6 continuous)
MKB1 P.C.B.
XTW3+10L (N2) Screw
MKB2 P.C.B.

EXPLODED VIEWS OF CABINET


N3
N4
N5
N6
4
3
N1
1-1
1
N2
1-2
2
N8
N7
5-1
5-2
5
N37
12
11
13
9-3
8
8-1
N9
N10
7
5-3
5-4
N11
N12
6
N16
19
N20
N39
N23
N24
8-2
14
15
N28
N38
9
9-1
N13
N14
N15
N17
N18
N19
N21
N22
N25
N26
N27
18
Technics
9-5
9-4
9-7
N29
N32
N31
N30
16
17
N40
N33
N34
N35
9-6
9-2
10
10-1
10-2
10-3
10-4
N36
20

REPLACEMENT PARTS LIST......Mechanism

Notes:

1. ○ mark are new parts.
2. For part No. with area mark, check the area when placing an order.
3. Cabinet parts marked with MC are those with walnut grain for Canada and Switzerland.

■ MECHANICAL PARTS

Ref. No.		Part No.	Description	Per/ Set
			CABINET	
○	1	SKGG2D60A	Music Rack Assembly	1
	1-1	SBLG7	Stay	1
	1-2	SBHG5003	Hinge	2
○	2	SKPG590A	Top Cover	1
○	3	SGWG1410A	Control Panel	1
○	4	SGKG2121A	Display Panel, for Musical display and orchestral conductor	1
○	5	SYWG5110A	Upper Right End Cover Panel	1
	5-1	SKEG1090A	Receptacle } Receptacle for Memory Pack	1
	5-2	SKEG1100A	Slid Cover	1
	5-3	SKEG1110A	Dust Cover	1
	5-4	SUSG300A	Spring	1
○	6	SGWG3150A	Lower Right End Cover Panel	1
○	7	SGXG1360AS	Ornament Panel for lower Keyboard	1
○	8	SYWG8060A	Left End Cover Panel	1
	8-1	SGEG180A	Ornament	1
	8-2	SGEG160A	Ornament	1
○	9	SKMG950AS	Cabinet	1
	9-1	SKEG7400A	Sliding Cover Guide	2
	9-2	SHRG2120A	Foot	4
	9-3	SKZG7390A	Rear Board, Upper	1
	9-4	SGXG1310A	Front Panel	1
	9-5	SGBS21	Technics Badge	1
	9-6	SGXG1100A	Expression Ornament	1
	9-7	SGXG1280A	Side grile	2
○	10	SKZG8210A	Sliding cover Assembly	1
	10-1	SGXG1290A	Aluminium Ornament	1
	10-2	SHSG2000A	Felt	2
	10-3	SBEG30A	Lock	2
	10-4	SBEG40A	Staple	2
○	11	SYUG1060A	Rear Board, lower	1
○	11	SYUG1061A	Rear Board, lower [EK], [XS], [XL], [X], [XX], [XR], [XV] only	1
○	12	SKHG50A	Handle	2
	13	SHRG1030A	Cord Band	1
	14	SHRG8130A	Speaker Cover	1
	15	SHSG9140A	Sound Absorbing Material	3
	16	SHRG1120A	Cord Clamper	1
	17	SHRG1110A	Cord Clamper	1
	18	SMKG1581A	Jack Panel	1
○	19	SMKG1950A	Jack Panel	1
			BENCH	
		SZ-U3	Bench	1

Ref. No.		Part No.	Description	Per/ Set
			CABINET MC	
○	1	SKGG2E50A	Music Rack Assembly	1
	1-1	SBLG7	Stay	1
	1-2	SBHG5003	Hinge	2
○	2	SKPG590B	Top cover	1
○	3	SGWG1410B	Control Panel	1
○	4	SGKG2121A	Display Panel for Musical display and orchestral conductor	1
○	5	SYWG5110B	Upper Right End Cover Panel	1
	5-1	SKEG1090A	Receptacle } Receptacle for Memory Pack	1
	5-2	SKEG1100A	Slid Cover	1
	5-3	SKEG1110A	Dust Cover	1
	5-4	SUSG300A	Spring	1
○	6	SGWG3150B	Lower Right End Cover Panel	1
○	7	SGXG1360AS	Ornament Panel for Lower Keyboard	1
○	8	SYWG8060B	Left End Cover Panel	1
	8-1	SGEG180B	Ornament	1
	8-2	SGEG160B	Ornament	1
○	9	SKMG950BS	Cabinet	1
	9-1	SKEG7400A	Sliding Cover Guide	2
	9-2	SHRG2120A	Foot	4
	9-3	SKZG7390B	Rear Board, Upper	1
	9-4	SGXG1310B	Front Panel	1
	9-5	SGBS21	Technics Badge	1
	9-6	SGXG1100A	Expression Ornament	1
	9-7	SGXG1280B	Slide Grile	2
○	10	SKZG8210B	Sliding Cover Assembly	1
	10-1	SGXG1290A	Aluminium Ornament	1
	10-2	SHSG2000A	Felt	2
	10-3	SBEG30A	Lock	2
	10-4	SBEG40A	Staple	2
○	11	SYUG1060B	Rear Board, Lower	1
○	12	SKHG50A	Handle	2
	13	SHRG1030A	Cord Band	1
	14	SHRG8130A	Speaker cover	1
	15	SHSG9140A	Sound Absorbing Material	3
	16	SHRG1120A	Cord Clamper	1
	17	SHRG1110A	Cord Clamper	1
○	18	SMKG1582B	Jack Panel	1
○	19	SMKG1950A	Jack Panel	1
			BENCH	
		SZ-U3N	Bench	1

Ref. No.		Part No.	Description	Per/ Set

ACCESSORIES

Ref. No.		Part No.	Description	Per/ Set
	20	SBEG60A	Key	1

SCREWS and WASHERS

Ref. No.		Part No.	Description	Per/ Set
	N1	XTB3+10A	Screw	
	N2	XTS3+10AFVC	Screw	
	N3	XTT4+12AFR	Screw	
	N4	XTB35+14A	Screw	
	N5	XWG3X13	Washer	
	N6	XTB4+12A	Screw	
	N7	XTB3+6F	Screw	
	N8	XTB3+12A	Screw	
	N9	XTT4+14AFVC	Screw	
	N10	XYN5+C10S	Screw, with Spring Washer	
	N11	XTB35+20AFZ	Screw	
	N12	XYN4+F10S	Screw, with Washers	
	N13	XTB35+25A	Screw	
	N14	XTT4+30A	Screw	
	N15	SNEG740A	Screw	
	N16	XTB35+10A	Screw	
	N17	XYN3+C12S	Screw, with Washer	
	N18	XTB35+12A	Screw	
	N19	XTB3+8BFVC	Screw	
	N20	XYN4+C20S	Screw, with Washers	
	N21	XTW4+8S	Screw	
	N22	XTB35+16A	Screw	
	N23	SNEG770A	Washer	
	N24	XNS12FZ	Nut	
	N25	SNEG4021-1	Nut	
	N26	SHR401-1	Nylon Latch	
	N27	XYNSG3S	Screw, with Washer	
	N28	SNE491	Nut	
	N29	SNEG150A	Washer	
	N30	XWA5B	Spring Washer	
	N31	SNEG960A	Screw	
	N32	XYN5+C30S	Screw, with Washer	
	N33	XTB35+35A	Screw	
	N34	XYN3+F16S	Screw, with Washers	
	N35	XTB3+14AFVC	Screw	
	N36	XTS4+12A	Screw	
	N37	XTT4+30AFVC	Screw	
	N38	SNE499-1	Nut	
	N39	XWG4F13	Washer	
	N40	XTB35+20A	Screw	

MANUAL KEYBOARD

Ref. No.		Part No.	Description	Per/ Set
○	1	STBG1150A	Natural Key (Top Octave C Key)	1
○	2	STBG1120A	Natural Key (B and E Key)	8
○	3	STBG1140A	Natural Key (A Key)	4
○	4	STBG1130A	Natural Key (G Key)	4
○	5	STBG1100A	Natural Key (C and F Key)	8
○	6	STBG1110A	Natural Key (D Key)	4
○	7	STBG2070A	Sharp Key	20
○	8	SUSG270A	Spring	49
○	9	SHSG1930A	Felt	2
○	10	SHGG9050A	Key Guide Rubber	49
	11	SSPG7001A	Rubber Switch (7 continuous)	1
	12	SSPG6001A	Rubber Switch (6 continuous)	7
	N1	XTN3+5C	Screw	5
	N2	XTW3+10L	Screw	13

PEDAL KEYBOARD

Ref. No.		Part No.	Description	Per/ Set
	1	SHGG50A	Rubber SW (5 continuous)	3
	2	SHSG1600B	Felt (Key Stopper)	1
	3	STBG4011A	Key Guide	1
	4	SHSG1460A	Felt (Key Guide)	14
○	5	STBG1160A	Natural Key	8
	6	STBG2051A	Sharp Key	5
○	7	STBG2310A	Full Bass Pedal	1
○	8	SGXG1390A	Ornament (Full Bass Pedal)	1
	9	SUSG180A	Spring	14
	10	SHGG8130A	Rubber	14
	11	SHRG9240A	Spacer	14
	N1	XTB3+6F	Screw	6
	N2	XNG5BS	Nut	14
	N3	XTB3+6B	Screw	5
	N4	SNEG360A	Bolt	14

SWITCH MOLD ASSEMBLY

	Part No.	Description	Per/ Set
○	SSHG9045AA	upper tab voices, percussive tone harmonic coupler, mode selector, upper organ presets and others	1
○	SSHG9046AA	bass, harmonic control, volume	1
○	SSHG9047AA	U & L vocal ensemble, string ensemble	1
○	SSHG9048AA	U & L percussive presets	1
○	SSHG9049AA	multi-tremolo/vibrato, chorus/celeste/phaser, lower tab voices, volume, harmonic coupler	1
○	SSHG9050AA	Voice Setting Computer, U & L orchestral presets	1
○	SSHG9051AA	U & L solo synthesizer presets	1
○	SSHG9062AA	orchestral conductor	1
○	SSHG9042AA	Program Rhythm Computer	1
○	SSHG9043AA	bass solo, transpose, techni-chord Program Chord Computer and other	1
○	SSHG9044AA	tuning, sustain control, Fullband Setting Computer and other	1

KNOB

	Part No.	Description	Per/ Set
	SBNG6010G	Slide Volume Knob, tempo control	1
	SBNG4010A	Mic Volume Knob	1

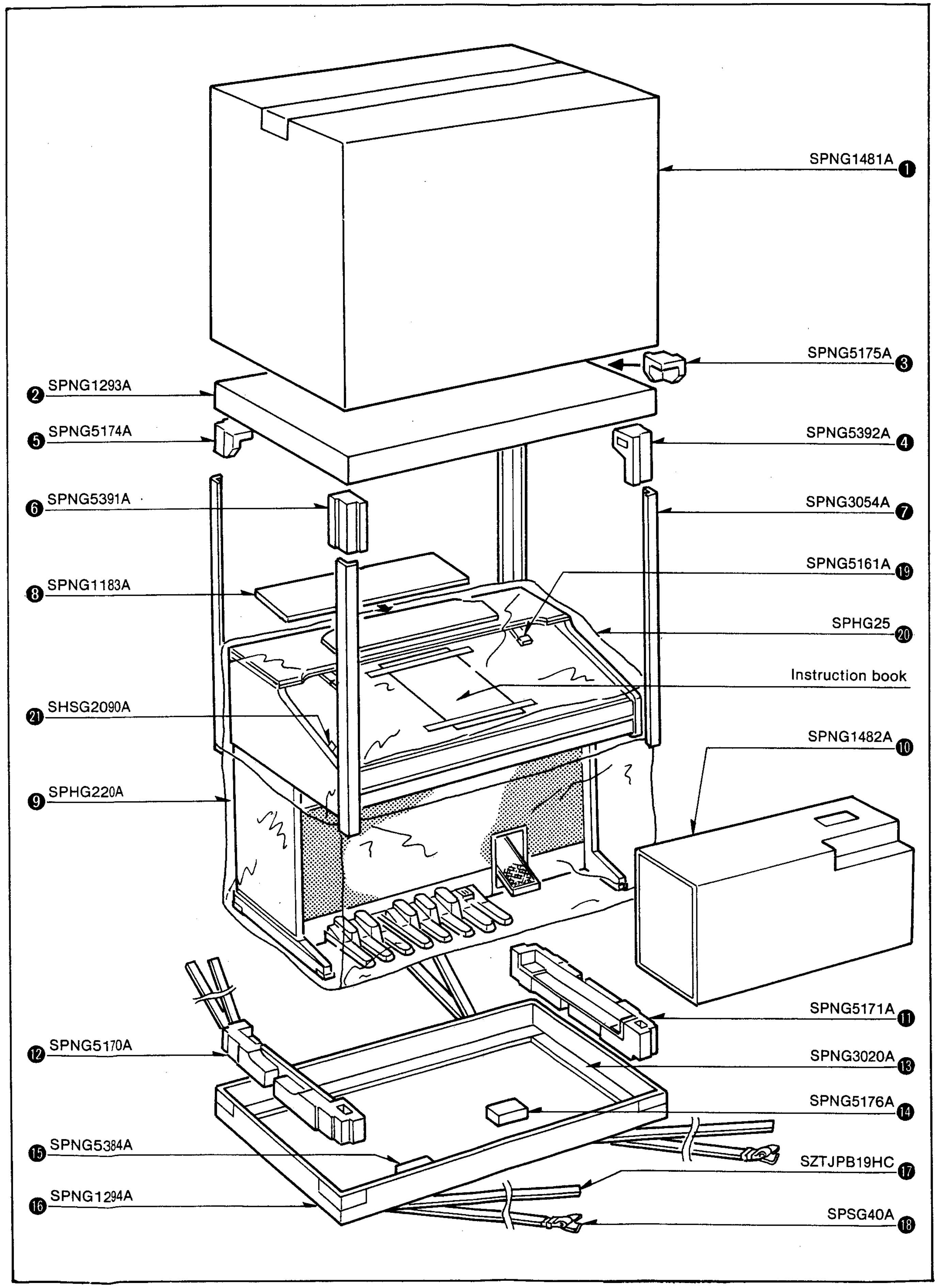
	Part No.	Description		Per/Set
		BUTTONS		
	SBCG20147	power switch		1
	SBCG150G01	upper tab voices	upper orchestral conductor	1
	SBCG140G01	percussive presets		1
	SBCG140G02	organ presets		1
	SBCG140G03	orchestral presets		1
	SBCG140G04	solo synthe presets		1
	SBCG140G06	string ensemble		1
	SBCG140G07	vocal ensemble		1
	SBCG150H01	lower tab voices	lower orchestral conductor	1
	SBCG140H01	percussive presets		1
	SBCG140H02	organ presets		1
	SBCG140H03	orchestral presets		1
	SBCG140H04	solo synthe presets		1
	SBCG140H06	string ensemble		1
	SBCG140H07	vocal ensemble		1
	SBCG140L01	I	voice setting computer	1
	SBCG140L02	II		1
	SBCG140L03	III		1
	SBCG140L04	IV		1
	SBCG140L05	V		1
	SBCG140L06	VI		1
	SBCG140L07	VII		1
○	SBCG141D01	cancel		1
	SBCG140B01	acoustic piano	U & L percussive presets	1
	SBCG140B02	electric piano		1
	SBCG140B04	harpsichord		1
	SBCG140B05	vibraphone		1
	SBCG140B06	acoustic guitar		1
	SBCG140B07	jazz guitar		1
	SBCG140B09	banjo		1
○	SBCG140B21	clavi		1
○	SBCG140B22	glocken		1
○	SBCG140B23	steel drum		1
○	SBCG170C00	harmonic control		2
	SBCG170G00	volume		2
	SBCG140E01	trombone	U & L orchestral presets	1
	SBCG140E02	saxophone		1
	SBCG140E03	accordion		1
	SBCG140E04	clarinet		1
	SBCG140E05	wah brass		1
	SBCG140E06	synthe brass		1
○	SBCG140E14	trumpet		1
○	SBCG140E15	french horn		1
○	SBCG170C00	harmonic control		2
	SBCG170G00	volume		2
	SBCG140F01	trombone	U & L solo synthesizer presets	1
	SBCG140F02	saxophone		1
	SBCG140F03	trumpet		1
	SBCG140F04	clarinet		1
	SBCG140F05	flute		1
	SBCG140F06	panflute		1
	SBCG140F07	synthe chopper		1

	Part No.	Description		Per/Set
○	SBCG140F14	harmonica	U & L solo synthesizer presets	1
○	SBCG140F15	violin		1
○	SBCG140F16	oboe		1
○	SBCG140F17	whistle		1
○	SBCG140F18	cosmic		1
○	SBCG140F19	rock guitar		1
○	SBCG140C09	key bender		1
○	SBCG170C00	harmonic control		2
	SBCG170G00	volume		2
	SBCG140A01	I	upper organ presets	1
	SBCG140A02	II		1
○	SBCG140A17	III		1
○	SBCG140A18	IV		1
○	SBCG161C00	mode selector, musical display		2
	SBCG130A01	flute 16′	upper tab voices	1
	SBCG130A02	flute 8′		1
	SBCG130A03	flute $5^{1}/_{3}$′		1
	SBCG130A04	flute 4′		1
	SBCG130A05	flute $2^{2}/_{3}$′		1
	SBCG130A06	flute 2′		1
	SBCG130A07	flute $1^{1}/_{3}$′		1
	SBCG130A08	flute 1′		1
	SBCG130B01	string 8′		1
	SBCG130B02	string 4′		1
	SBCG170G00	volume		2
	SBCG160C00	slow attack		1
	SBCG160K00	$2^{2}/_{3}$′, program	upper harmonic coupler	2
○	SBCG161J00	cancel		1
	SBCG130A09	4′	percussive tone	1
	SBCG130A10	$2^{2}/_{3}$′		1
	SBCG130A11	2′		1
○	SBCG130A18	$5^{1}/_{3}$′		1
	SBCG130C01	click		1
	SBCG170G00	volume		2
	SBCG160C00	long		1
	SBCG140A03	bass 16′	bass	1
	SBCG140A04	bass 8′		1
	SBCG140B10	electric bass		1
	SBCG140B11	acoustic bass		1
○	SBCG140B16	chopper bass		1
○	SBCG140B17	ensemble bass		1
	SBCG140F08	synthe bass		1
	SBCG140F09	tuba		1
○	SBCG140F20	pipe bass I		1
○	SBCG140F21	pipe bass II		1
○	SBCG170C00	harmonic control		2
	SBCG170G00	volume		2
○	SBCG140F12	ah/humming	U & L vocal ensemble	1
	SBCG170G00	volume		2
○	SBCG140B19	cello	string ensemble	2
○	SBCG140B20	violin		2
	SBCG170G00	volume		4

	Part No.	Description			Per/Set
	SBCG160E00	vibrato	multi-tremolo/vibrato		1
	SBCG130A12	U. tab voices			1
	SBCG130A13	L. tab voices			1
○	SBCG130D02	slow/fast			1
○	SBCG161A01	cancel	tab voices	effect conductor	2
○	SBCG140A21	chorus			2
○	SBCG140A22	celeste			2
○	SBCG161B01	cancel	percussive		1
○	SBCG140B24	chorus			1
○	SBCG140B25	celeste			1
○	SBCG161E01	cancel	orchestral		1
○	SBCG140E12	chorus			1
○	SBCG140E13	celeste			1
○	SBCG161F01	cancel	solo synthe		1
○	SBCG140F13	chorus			1
○	SBCG140F22	celeste			1
	SBCG130A02	flute 8′	lower tab voices		1
	SBCG130A04	flute 4′			1
	SBCG130A06	flute 2′			1
	SBCG130A08	flute 1′			1
	SBCG130B01	string 8′			1
	SBCG130B02	string 4′			1
	SBCG170G00	volume			2
○	SBCG160K00	2′, program	lower harmonic coupler		2
○	SBCG161J00	cancel			1
	SBCG140E00	rhythm sequencer			1
○	SBCG140E16	I	composer		1
○	SBCG140E17	II			1
○	SBCG140A23	march	drum percussion selector		1
○	SBCG140C11	8 beat			1
○	SBCG140A25	ballad			1
○	SBCG140C13	rumba			1
○	SBCG140A27	mambo			1
○	SBCG140C15	waltz			1
○	SBCG140A28	tango			1
○	SBCG140C14	samba			1
○	SBCG140A26	bossanova I			1
○	SBCG140C12	disco I			1
○	SBCG140A24	16 beat			1
○	SBCG140C10	swing I			1
	SBCG140B13	I	arrange percussion		1
	SBCG140B14	II			1
	SBCG140K01	on	drum percussion		1
	SBCG140J01	mellow			1
	SBCG170G00	volume			2
	SBCG140B15	I/II	rhythmic orchestra		1
○	SBCG140E18	rhythmic			1
○	SBCG140E19	melodic			1
	SBCG170G00	volume			2

	Part No.	Description		Per/Set
○	SBCG140A29	fine	tempo set	1
	SBCG140L01	I		1
	SBCG140L02	II		1
	SBCG140K02	I	fill in & intro	1
	SBCG140K03	II		1
	SBCG140C00	bass solo		1
	SBCG140E10	transpose		1
	SBCG140L08	close/open	techni-chord	1
	SBCG140D02	on		1
○	SBCG141K01	cancel	Program Chord Computer	1
	SBCG140J02	PCC		1
	SBCG140J03	fingered		1
	SBCG140A13	memory		1
	SBCG140F10	record		
○	SBCG140A30	glide/rhythm	drum percussion control	1
	SBCG140A15	synchro		1
	SBCG150G00	start/stop		1
	SBCG160C00	free set	tuning	1
	SBCG170G00	control volume		2
	SBCG160C00	on	sustain control	3
	SBCG170G00	control volume		8
○	SBCG160B00	bass, lower	Play Sequencer	2
	SBCG160E00	upper, solo		2
	SBCG170G00	main volume, digital reverb		4
	SBCG140L00	Fullband Setting Computer		1
	SHRG9390A	lever	tang switch button	24
	SHRG9400A	case		24
	SHRG9410A	lever	push switch button	190
	SHRG9430A	lever (2 continuous)		3
	SHRG9420A	case		196
		INSTRUCTION BOOK		
○	SQFG1450	Instruction Book (NORSK, SVENSKA, DANSK, SUOMI)		1
○	SQFG1470	Instruction Book (ENGLISH, FRANÇAIS)		1
○	SQFG1480	Instruction Book (DEUTSCH, FRANÇAIS, ESPAÑOL, NEDERLANDS)		1
○	SQFG1540	Instruction Book (ENGLISH, ESPAÑOL)		1

PACKING


SPNG1481A ❶
SPNG5175A ❸
❷ SPNG1293A
❺ SPNG5174A
SPNG5392A ❹
❻ SPNG5391A
SPNG3054A ❼
SPNG5161A ⓳
❽ SPNG1183A
SPHG25 ⑳
Instruction book
㉑ SHSG2090A
SPNG1482A ❿
❾ SPHG220A
SPNG5171A ⓫
⓬ SPNG5170A
SPNG3020A ⓭
SPNG5176A ⓮
⓯ SPNG5384A
SZTJPB19HC ⓱
⓰ SPNG1294A
SPSG40A ⓲

PACKING PARTS LIST

■ PACKING PARTS

Ref. No.		Part No.	Description	Per/ Set
○		SPNGG7EA	Packing Parts Assembly	1
○	1	SPNG1481A	Carton Box	(1)
	2	SPNG1293A	Top Case	(1)
	3	SPNG5175A	Pad, Rear Right Side	(1)
○	4	SPNG5392A	Pad, Front Right Side	(1)
	5	SPNG5174A	Pad, Rear Left Side	(1)
○	6	SPNG5391A	Pad, Front Left Side	(1)
○	7	SPNG3054A	Prop	(4)
	8	SPNG1183A	Pad, for music rack	(1)
	9	SPHG220A	Polyethlene Bag	(1)
○	10	SPNG1482A	Spacer, Bench	(1)
	11	SPNG5171A	Pad, Right Side	(1)
	12	SPNG5170A	Pad, Left Side	(1)
	13	SPNG3020A	Frame	(1)
	14	SPNG5176A	Spacer	(1)
○	15	SPNG5384A	Spacer	(1)
	16	SPNG1294A	Bottom Case	(1)
	17	SZTJPB19HC	Band	(2)
	18	SPSG40A	Band, with Rings	(2)
	19	SPNG5161A	Spacer, Top Cover	2
	20	SPHG25	Protection Cover	1
	21	SHSG2090A	Spacer, Sliding Cover	2